TROPICAL DISEASES BUREAU.

TROPICAL DISEASES BULLETIN.

Vol. 22.] 1925. [No. 1.

AMOEBIASIS AND DYSENTERY.

AMOEBIASIS.

ACTON (Hugh W.) & KNOWLES (R.). **Of Carriers.**—*Indian Med. Gaz.* 1924. Sept. Vol. 59. No. 9. pp. 440–444. With 1 coloured plate & 1 chart. [3 refs.] *Entamoeba histolytica*

The authors continue their review of the present knowledge of dysentery [see below], in a comment upon the carrier-state of *E. histolytica*. Clinical experience during the last three years had led them to doubt whether the "healthy" carrier is always free from clinical symptoms. Generally he is not sufficiently ill to seek medical advice. The geographical incidence of the carrier-state in India varies between urban and rural areas. The findings are correlated with general methods of sanitation and climatic conditions. The prevalence of the hot dry wind, such as occurs in Mesopotamia and similar countries, is considered to be a factor in the dissemination of the disease. Clinically, two marked types are recognized: the first, a lean cadaverous individual; the second, a fat jovial type. The following is a résumé of the train of symptoms observed: irregularity of the bowel with visceroptosis, colicky vague pain, fever of an irregular type, complications such as bacterial embolism due to haemolytic streptococci, causing "streptococcal showers" in the bloodstream, and consequent arthritis, neuritis, sciatica, urticaria and neuralgia. The laboratory diagnosis is founded on the presence of mucus adhering to the scybala, the reaction of which is alkaline to litmus; the pH optimum medium for cysts is 7·24. Microscopical examination of the stool should be carried out with the addition of normal saline and a solution of iodine 1 part, potassium iodide 2 parts and water 100; this will show up the nuclei and various other structures. A laboratory worker who has not examined 1,000 stools should consider himself a tyro. The presence of Charcot-Leyden crystals is an additional factor in diagnosis. The presence of streptococci and yeasts, demonstrated by cultural examination of the faeces, is suggestive of the existence of *E. histolytica* cysts. The authors advocate that treatment of the carrier should be as vigorous as that of a case of acute amoebic dysentery.

P. H. Manson-Bahr.

(K2182) Wt P17/148 1,750 1/25 H & Sp Gp 52

PONTANO (Tommaso). **L'amebiasi intestinale in Italia.**—*Policlinico.* Sez. Med. 1924. Aug. 1. Vol. 31. No. 8. pp. 417–449.

In 1918 the author pointed out the importance of examining the freshly passed faeces of all diarrhoeic patients, in order to detect the presence of *Entamoeba histolytica* or its cysts, and noted their occurrence in cases which did not show typical symptoms of dysentery. In the present paper, based on a study of 150 cases, it is shown that the classic type of dysentery is rare in Italy, but that amoebiasis may be found in many patients with intestinal disturbance.

The article is divided into six sections. In the first are described the various clinical syndromes in which the entamoeba has been found; in the second, the clinical characters common to patients with intestinal amoebiasis; in the last four, the diagnosis, pathogenesis, prognosis and treatment.

The commonest form of disturbance is intermittent diarrhoea, chronicity and tendency to relapse being the main features, with abdominal pain at the time of the exacerbations, and motions frequently pultaceous. This form occurred in one-third of the cases. In 26·6 per cent. there was alternating constipation and diarrhoea, with abdominal pain during the former. A third group suffered from chronic stasis with pain, possibly due to ulceration; seven of the 150 were of this type. A fourth group, of 13 cases, showed symptoms of relapsing dysentery at long intervals during which the patient enjoys good health. Others, again, referred the symptoms to some particular viscus; for example, those with an "appendicular syndrome" were not infrequently subjected to a needless operation, others simulated hepatic colic, yet others symptoms of rectal stenosis with blood-stained motions, leading to an erroneous diagnosis of malignant growth.

The second section, dealing with the common clinical characters, mentions particularly the tendency to relapses or exacerbations, the chronicity, pain and the presence of mucus in the stools. The question of diagnosis, discussed at considerable length, may be summed up as consisting of faecal examinations and a knowledge of the appearance of the entamoeba and its cysts. Under pathogenesis is given an account of the physiology of the large intestine, a description of the anatomical changes set up by the presence of the entamoeba, and a suggested explanation of the symptoms. Prognosis, in the absence of complications, depends largely upon the length of time the disease has existed. In recent cases cure can nearly always be attained; in the chronic, as a rule, amelioration only.

Lastly, as regards treatment. The use of emetine hydrochloride and of the double iodide of emetine and bismuth is discussed, the former by injection for the more acute cases, the latter by mouth for the chronic. The double iodide is given in pill form each evening 3 hours after a meal for 12–15 days, each pill containing 6 cgm. of emetine. The important points in treatment with this drug are large doses and intermittent repetition of the course until all intestinal disturbances have disappeared and repeated examinations of the faeces after a saline purge fail to reveal any entamoebae. Treatment by nitrate of silver (1 : 4,000) locally and by neosalvarsan, intravenously and by rectal injection, are also briefly mentioned.

H. Harold Scott.

DE VECCHI (Bindo). **Sull' anatomia patologica dell' entero-colite amebica.**—*Sperimentale.* 1924. Aug. 14. Vol. 78. No. 4–5. pp. 407–455. With 3 plates. [50 refs.]

In this paper is described with a wealth of detail the pathological anatomy of intestinal amoebiasis based on three autopsies. In one only was death the result of amoebic infection, namely, by hepatic abscess; the causes of death in the others were, respectively, senile dementia and apoplexy, and cerebral haemorrhage.

For detection of amoebae in the tissues the author fixes in corrosive sublimate and stains, first, with haematoxylin and then in Ziehl's fuchsin diluted 1 in 5. He mentions the points of distinction between the amoeba and various phagocytes and wandering tissue cells, an important matter, since some of the drawings are not very convincing.

As regards the histological characters of the lesions, particular stress is laid upon three points: (1) Imbibition of fluid in the submucosa with hyaline necrosis of the connective tissue in which amoebae are abundant; (2) Absence of polymorphonuclear leucocytes, not only in the lesions of the mucosa, but in the deeper submucous layers; (3) Presence of granulation tissue and a lymphocytic type of inflammatory reaction in the deeper strata. In two of the cases amoebae were seen in the subserous tissues of the appendix, extending to the mesentery, but not to the mucous surface. The changes in this structure are attributed to a previous acute process which brings about an atrophic and fibrous condition, while the amoebae persist in the deeper tissues.

The author believes that intestinal amoebiasis in Italy assumes in many cases a chronic course with prolonged latent periods, and that, if microscopical examination of the intestinal tissues was systematically made in cases presenting the signs of chronic ulceration, amoebae would be more frequently discovered.

H. Harold Scott.

CALLANAN (J. C. J.). **An Epidemic of Amoebic Dysentery in the Igoji and Imenti Divisions of Meru District.**—*Kenya Med. Jl.* 1924. July. Vol. 1. No. 4. pp. 117–123.

This paper fully illustrates the difficulty of investigating the nature of an epidemic of dysentery in native villages. The sick absconded into the bush and were discovered in hiding after a prolonged search. Only two cases had their faeces examined microscopically and in both the amoebae were readily discovered. The horrible insanitary conditions prevailing rendered direct microscopical examinations impossible as a routine measure. In many instances the ground was literally strewn with blood and mucus and swarming with flies. "The stools seen were in all cases typical of amoebic dysentery."

The excellent results observed from treatment by emetine and the speedy amelioration of the dysenteric symptoms after exhibition of the drug may be regarded as diagnostic of the cause of dysentery in this epidemic.

[The high mortality rate, as evidenced by the rough statistics obtained from native sources, the rapid spread of the epidemic and the acute fulminating symptoms, would appear to be more suggestive of an outbreak of bacillary dysentery.]

P. H. M-B.

SMITS (J. C. J. C.). **Appendix and Gall-Bladder in the Surgery of Amoebic Colitis.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 521–523.

GILMAN holds that in America frequent relapses of amoebic colitis must be ascribed to the appendix and gall-bladder and advocates the extirpation of both ! ! According to Smits appendectomy in amoebiasis is not a "*bona fide* operation." The faeces of patients in the tropics who complain of symptoms referable to the appendix should be carefully and repeatedly examined by microscope. Operation should never be considered until this is done. In Batavia abscesses and infiltration in the neighbourhood of the caecum are frequently found, but whenever the appendix has been pathologically examined, it has been found unaltered. Other observers have never found the entamoebae in the gall-bladder.

P. H. M-B.

ALLEN (G. V.). **The Diagnosis of Amoebiasis.**—*Kenya Med. Jl.* 1924. Sept. Vol. 1. No. 6. pp. 172–181.

This is a summary of the present knowledge of *E. histolytica* and amoebiasis in general. One original observation is recorded, viz., the discovery at autopsy of amoebic ulceration of the lower part of the ileum. It is stated that "mucous colitis" is undoubtedly due to *E. histolytica.*

P. H. M-B.

HEYMANN (P.). **De l'examen du foie pour pneumo-péritoine dans les cas d'abcès.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 753–768.

Ten cases are recorded as illustrating the value of pneumoperitoneum in locating an abscess of the liver. In eight of them no assistance was rendered to the operator by a radiograph of the hepatic area taken by the customary method, but, after inflation of the peritoneum with air, no doubt could any longer be entertained as to the exact position of the abscess. By the direct radiographic method the view of the diaphragmatic dome is obtained through a depth of lung tissue, while the lower border of the liver is no longer detectable, and the left lobe is quite inaccessible. By the pneumoperitoneal method the organ is surrounded by a gaseous zone which renders its outline and shape visible. The shadow of the liver may be actually seen crossing the spleen. These may be termed the more remote signs, but occasionally the actual outline of the abscess may be discernible. The classical signs of elevation and contortion of the hepato-diaphragmatic dome, limitation of the movements of the diaphragm and obscurity of the sinus, are generally present when the abscess is situated near the superior surface of the liver, but are not usually evident when it is situated on the anterior or inferior surface. In these latter cases, as in four instances quoted, the pneumoperitoneal radiograph showed a shadow at the seat of the abscess. Sometimes the location is effected only when the patient is placed in certain positions. The size of the abscess can be gauged with fair accuracy, while the presence of adhesions may be ascertained.

Another advantage of pneumoperitoneum is the good pictures which may be obtained with a comparatively feeble apparatus. In one

obscure case the left lobe of the liver was visible but on exploration nothing was found, the abscess in the meantime having ruptured into the duodenum.

The fear of rupturing adhesions should not be a contraindication to this method; contraindication should rather be based upon the general state of the patient, and the presence of abdominal pain. In spite of the defects in his apparatus (for puncture is made through the lumbar region and the air introduced without any precise gauge), the author has only had to register two incidents. In one case the air was not absorbed for four days and occasional vertigo and a feeble, rapid pulse resulted with cardiac arhythmia. In the other case apparently the gut was punctured and a little faecal material escaped, but no permanent injury was caused. A radiograph on customary lines should always be taken before the pneumoperitoneal method is considered; nor should it ever replace exploratory puncture, but should be considered as an adjuvant to it and to the customary blood examination.

P. H. M-B.

LEAR (Maxwell) & MERRILL (Earl S.). **Amoebic Liver Abscess with a Report of Two Cases occurring in Connecticut.**—*Ann. Surgery.* 1924. May. Vol. 79. No. 5. pp. 730–739. With 4 text figs. [5 refs.]

The occurrence of amoebic abscess of the liver in two patients, in conjunction with a small local outbreak of amoebic dysentery in Connecticut, is the theme of this paper; the outbreak has already been reported upon.* One case occurred in a male, the second in a female; in the former there was no leucocytosis, in the latter but a moderate rise. X-ray examination demonstrated elevation and fixation of the right dome of the diaphragm and enlargement of the liver [this is clearly shown in the excellent radiogram which illustrates the paper].

In both cases a definite solitary abscess was found, open operation by the subcostal route was performed and the pus aspirated from the cavity; it is claimed that this procedure is safer than blind hepatic puncture. The patients both received ample injections of emetine. In the authors' opinion treatment by aspiration and systemic emetine medication gives better results than open incision and drainage, in which failure may result from secondary pyogenic infection. Aspiration was not repeated in either case and in neither has there been evidence of recurrence.

P. H. M-B.

FRY (A. Sargood). **The Spontaneous Absorption of Amoebic Abscess of the Liver under Emetine Therapy.**—*Indian Med. Gaz.* 1924. Oct. Vol. 59. No. 10. pp. 488–492. With 5 figs. & 2 charts in text. [18 refs.]

Surgeons should make the use of emetine an essential part of pre-operative preparation, if not the sole treatment of liver abscess. Several cases have been reported of amoebic abscess being cured by emetine therapy alone (see this *Bulletin*, Vol. 18, p. 38, HODSON). Two cases are here reported in which large abscesses were certainly

* BLAKE (F. G.) & HISCOCK (I. V.). Amebic Dysentery in Connecticut. *Proc. Conn. State Med. Soc.* New Haven. 1923. Vol. 131. pp. 125–139.

present, so large that exploratory puncture would have been an unnecessary refinement. The clinical recoveries are to be attributed solely to the effect of emetine. Of the two cases the second was the more acute, and the continuation of the pyrexia would certainly have led to further methods of treatment had not the general condition of the patient improved.

The first case presented a marked bulging over the hepatic region, while X-ray examination revealed immobility of the right dome of the diaphragm, a projection rising as high as the nipple. After 12 grains of emetine, in doses of one grain daily, a rapid diminution in the size of the liver and a corresponding decrease in the leucocytes took place. The patient gained 2½ stones in weight.

The second case had a similar swelling (as shown in photograph). The liver dullness extended 11½ inches in the right lateral line and X-rays confirmed the compression of the right lung. There was no

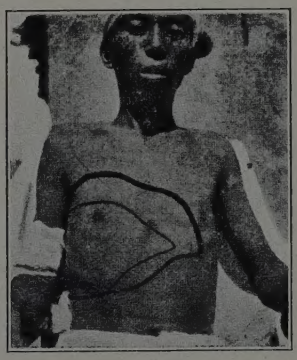

Fig. 1.—Captain Fry's Case 2 (Gurkha Rifleman G.S.R.) diagnosed as amoebic abscess of the right lobe of the liver. Photograph shows patient on August 30th, 1923, at commencement of treatment. The deep percussion dullness (indicated by heavy line) reached the upper border of the second rib in front; the superficial dullness (indicated by light line) reached the fourth rib.
(Note: Patient leaning over to right side.)
[Reproduced from the *Indian Medical Gazette.*]

leucocytosis. Symptoms subsided after 12 grains of emetine and a remarkable diminution in the volume ensued, but the general improvement was not so marked as in the first case. The author considers that a clinical cure was obtained in both patients with complete absorption of the abscesses, the assimilation of sterile pus being in no way detrimental to the patient. It would appear that aspiration could be dispensed with in many such cases of amoebic abscess.

P. H. M-B.

Petzetakis. **Traitement systématique de l'amibiase par les injections intraveineuses d'émétine.**—*Presse Méd.* 1924. Aug. 27. Vol. 32. No. 69. pp. 705–710. With 7 figs. [14 refs.]

The author believes that the term "amoebic dysentery" denotes not merely a local intestinal, but a generalized infection. It is preceded

by the presence of the amoeba in the bloodstream, which alone can account for the occasional presence of these organisms in the liver, brain, gall bladder, lung, kidney and other viscera. He believes that the life history of the *Entamoeba histolytica* in the human body is not sufficiently understood. The method of intravenous injection of emetine, here advocated, is considered to be much more efficacious and less toxic than the hypodermic or intramuscular methods usually employed, and relapses, as a rule, do not occur. Generally the arterial pressure falls after an injection, not with doses of 0·02–0·03 gramme, but noticeably after 0·04 gramme. In the majority of cases the pulse-rate becomes retarded, sometimes, if the myocardium be unduly irritable, accelerated. As regards the rhythm of the pulse, extra systoles are frequently noted during the injection, especially in young adults.

The injections are made at the bend of the elbow and are seldom accompanied by any disagreeable sensations, at the most slight headache and a tendency to vomit. In the young, feeble, or those with low blood pressure, the dose in the ampoule should be diluted with 2–20 cc. of distilled water. In acute amoebic dysentery the doses given range from 0·03 gm. on the first day to 0·06 gm. on the 12th, making a total of 0·35 to 0·45 gm. In graver cases it is usual to commence with 0·05 gm. and gradually to increase up to 0·1 gm., making a maximum total of 0·6 gm. In gangrenous cases it is permissible to raise the dose to 0·15 gm.

Seven initial intravenous injections are necessary. After twenty days to one month, according to the nature of the case, a second course of injections is advised; 5 or 6 injections of 0·05 gm. are sufficient, given every second day (a total of 0·30 gm.). Lastly, during the first year following upon an attack of dysentery three other courses of emetine (subcutaneous or intramuscular) should be given—a series of 5 or 6 injections of 0·05 gm. each, making in all five series of emetine injections. In the second year 2 or 3 fresh series of emetine injections are advisable, in order to stave off hepatic and gastrointestinal sequelae.

In chronic amoebic dysentery with the passage of cysts surprising results are obtained, and sometimes permanent cure. The effects are striking in broncho-amoebiasis, cystitis, nephritis, hepatitis, appendicitis, and in a form of cholecystitis which the author believes to be due to *E. histolytica*. The author would explain the specific action as affecting primarily the circulation in lowering the tension. According to the author the drug is also a *decongestive* and *analgesic*.

An immediate toxic action of emetine is rare; a fatal case is reported after a single injection of 0·35 gm. In childhood and infancy emetine must be given with caution; below the age of 15 years children are singularly intolerant.

The following doses are given:—

Up to one year individual dose should not exceed 0·05–0·06 gramme; from 2–3 years, 0·08–0·10 gramme; from 3–5 years, 0·12–0·15 gramme; from 5–10 years, 0·20–0·25 gramme.

Investigations upon the intravenous injection of chloride of calcium, $CaCl_2$, have led the author to regard this drug as having a beneficial effect upon dysentery, especially in cases where emetine is contra-indicated, and in association with emetine its therapeutic effects are most striking. Symptoms of intolerance to emetine do not supervene. The dose is injected in a 10 per cent. solution, 0·5 to 1 gramme at a time, in the same solution as the emetine, the combination being known as

emetine-calcium chloride. The elimination of the toxic effects of emetine is possibly due to the diuretic effect of calcium chloride. The latter method is considered the treatment of choice.

P. H. M-B.

FRENCH (G. R. W.) & SELLARDS (A. W.). **The Effects of *Castela nicholsoni* in the Treatment of Chronic Amoebic Dysentery.**—*U.S. Nav. Med. Bull.* 1924. Aug. Vol. 21. No. 2. pp. 184–190. [4 refs.]

During 1923 seventeen cases of long standing amoebic dysentery were treated in a naval hospital—all veterans of the Great War who had been infected for periods varying from three to six years. As might be expected, the treatment of these cases proved to be difficult; it consisted in the injection of emetine; in no instance had emetine bismuth iodide been exhibited.

Attention is directed principally to *Castela nicholsoni*, of which it is necessary to use potent extracts and to administer practically the maximum tolerated dose. The active principle of Castela has not been definitely determined; it is probably a glucoside. The twigs and finer branches of the plant are ground to fine powder, one kilo of which is extracted by boiling for several hours with pure methyl alcohol. The alcohol extracts the greater portion of the bitter principle. When evaporated at a low temperature an abundant tarry residue remains, which should be extracted with 100 cc. of water. In dosage of 0·3 cc. this extract is lethal to guineapigs. Kittens receiving fatal doses by the mouth develop acute diarrhoea. 3 cc. was employed as a dose for an adult, and given once daily for two weeks; diluted with a glass of water at the evening meal it is stimulating to the appetite. There was extreme variation in the response in individual cases, symptomatic relief being obtained in the majority. In eleven the stools became temporarily free from amoebae, in five the infection persisted, and in six the effects of the drug appeared magical.

Difficulties were experienced in the administration of emetine bismuth iodide even in salol-coated pills. The response was poor and the results unsatisfactory. Many patients refused the drug in capsule form on account of the attendant nausea and vomiting. Emetine hydrochloride, 1 grain in 200–300 cc. of saline, proved very irritating. Bismuth subnitrate in large doses is a valuable palliative. In contrast to emetine and its derivatives, preparations of Castela can be administered easily and pleasantly by mouth, and when properly used are more effective than emetine.

P. H. M-B.

KOP (W. A.). **Yatren in the Treatment of Amoebiasis.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore. 1923.* pp. 515–520. [4 refs.]

The treatment of amoebic dysentery, especially of the chronic cases, is still unsatisfactory. According to the author emetine-bismuth-iodide is nearly always a failure. He favours the use of Yatren, supplied by the Behringwerke, Marburg, Germany, which is iodine-oxychinolin-sulphonic-acid mixed with 20 per cent. sod.-bicarb.; when taken in solution by the mouth it becomes iodine-oxychinolin-sulphate of soda with the liberation of CO_2. Yatren is easily dissolved in water up to

a 6 per cent. solution and is practically non-poisonous. It can be given orally, subcutaneously, or intravenously. It is a cell-stimulant and strong disinfectant. KUENEN has reported well of it, and it is widely used in the Dutch East Indies. MÜHLENS and MENCK give it in an enema of 2–10 per cent. By the mouth, as the author and others exhibit it, the drug is given to an adult in 1 gm. doses in powder form three times a day continuously for ten days, the course to be repeated after an interval of one week. The diet should consist of light and varied food, biscuits, soft-boiled eggs, milk, soup, and mashed potatoes. Patients need not be confined to bed. Acute cases are first treated with injections of emetine till the symptoms abate. Yatren itself produces diarrhoea; it is excreted in the urine, which gives a positive oxychinolin test (green colour with ferric chloride). Iodism is never caused, although Yatren contains 36 per cent. of iodine. The good results are probably brought about by its cell-stimulating properties. An illustrative case is cited of a boy of 10 years with an amoebic dysentery refractory to emetine in all forms. After 1 gm. of Yatren in two days all protozoa vanished from the stools and have not been noted since. The author is now experimenting with one course of ten days' treatment. The cost of the double course is £5.

P. H. M-B.

TRAVAGLINO (P. H. M.) & SOEDJONO (Raden Mas). **De therapie der amoebendysenterie.**—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1924. Vol. 64. No. 4. pp. 551–580.

This is a circumstantial account of the writers' experience in about 350 cases among the population of a lunatic asylum in Java, offering very favourable conditions for protracted observation.

Yatren ranks highest among the drugs they administered; emetine injections figure next in efficacy. Emetine bismuthous iodide was not so effective [but the dosage administered was only about one-seventh of the usual]. Tannin injections are too painful. Cane sugar enemas, ipecac powder in salol-coated pills, bismuthous preparations per os, or simply diet and rest, were not successful, nor were quinine enemas. Of the native drugs tried one, called "setjang," appeared to give satisfactory results.

[It does not appear from the description whether *E. coli* infections were eliminated from the material with sufficient certainty; the authors distinguish between *histolytica, minuta* and *tetragena* forms and cysts, which classification is not quite clear; they apparently do not consider the presence of cysts merely as a proof of the still existing infection, but take such cases as a separate class. These and similar shortcomings diminish the value of the authors' conclusions. Moreover, the separate series of cures, except that of cases treated with emetine injections, are rather small.]

W. J. Bais.

SELLARDS (Andrew Watson) & LEIVA (Lamberto). **Experimental Therapy of Amoebic Dysentery.**—*Jl. Pharm. & Experim. Therap.* Baltimore. 1924. Jan. Vol. 22. No. 6. pp. 467–481. [12 refs.]

Continuing their studies, the authors have tested a miscellaneous group of substances in liquid medium upon limax amoebae. The basis was composed of peptone 1 gm., lactose 1 gm., water to 1,000 cc., and

in this the organisms grew readily at 37° C. The results obtained by various investigators with limax amoebae are not comparable, because no attempt has been made to standardize the conditions of experimentation. Utilized in this manner, emetine hydrochloride in a strength of one in a million exerts a strong inhibitive action, and as an example of the elimination of unpromising substances which is possible by this method the feeble action of *Tinospora rumphii* Boerlage is cited, a plant which has a great reputation amongst the natives of the Philippines.

The study of the therapeutic action on experimentally infected kittens is vitiated by the secondary septicaemia which results in these animals as the result of bacterial invasion of the amoebic lesions. Early diagnosis is requisite for successful treatment in cats, as the spontaneous discharge of blood and mucus per rectum does not appear till the bowel is very extensively involved. Forty-eight hours after inoculation of material per rectum amoebae may be demonstrated in faeces obtained by enemata. Six adult cats, weighing 1,800 to 2,400 gms. were given emetine hydrochloride in daily doses of 10 mgm. per kilo for three successive days ; the injections were given subcutaneously in two and per rectum in four. Two of the former and one of the latter died as a result. Subsequently the total quantity used in treatment did not exceed 25 mgm. per kilo. The results indicated that the drug was more effective by the rectal route than by the subcutaneous. Adult cats responded readily to treatment ; two animals which died 35 and 82 days after inoculation showed no lesions in the colon ; in other animals death took place from bacterial septicaemia after the amoebae had disappeared. In kittens early and vigorous treatment demonstrated the efficacy of emetine even when death from bacterial invasion eventually occurred. Prophylactic injection of emetine did not prevent the subsequent infection with entamoebae. A few experiments with quinine (200 mgm. per kilo) per rectum gave surprising results. One animal treated early in the course of the disease recovered promptly. No satisfactory results were obtained with papaverine or extracts of *Castela nicholsoni*.

In man a comparatively small amount of emetine (1 or 2 mgm. per kilo) will usually check the acute symptoms in a few days, but a larger amount (7–10 mgm. per kilo) is required in kittens. Recovery from amoebic dysentery in man and the lower animals results from (*a*) the natural resistance of the host and (*b*) moderate toxic action of emetine on the entamoebae.

P. H. M-B.

REISS (Friedrich). **Ueber Amöbenzystitis.**—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Aug. Vol. 28. No. 8. pp. 334–336. [4 refs.]

Cases of amoebic infection of the bladder are rare. In the two instances reported in this paper, symptoms consisted of strangury and haematuria. On examination of the urine small forms of the amoeba (*Amoeba minutissima*) became apparent. The bladder was irrigated with a 10 per cent. Yatren solution containing 5 per cent. novocaine ; in spite of the analgesic considerable pain was caused by the injections, which were performed every second day till fourteen had been given.

The second case had suffered four years previously from amoebic dysentery, and in him cystoscopic examination revealed actual ulceration of the trigone of the bladder, which under Yatren therapy healed in six weeks.

[The author's knowledge of the bionomics of *Entamoeba histolytica* does not appear to be very accurate, for he states that *Amoeba histolytica minutissima* is a form characterized by its small size and by its formation of only three cysts ! !]

P. H. M-B.

CARBONARO (G.). **Amebiasi in Sicilia—sopra un caso di localizzazione amebica nell' apparato urinario.**—*Policlinico.* Sez. Prat. 1924. Oct. 13. Vol. 31. No. 41. pp. 1327–1331. [23 refs.]

The patient, a man of 61 years, in June, 1921, had an attack of haematuria, and in March, 1922, a more severe attack lasting for three days and returning at brief intervals, accompanied later by strangury and dull pain in the left lumbar region. He came under observation in February, 1923. Examination of the urine revealed pus and "numerous bodies, 20–30μ in diameter, round or irregularly oval, some with included bacteria and red corpuscles ; there was no doubt that they were amoebae." No tubercle bacilli were found. X-rays showed that the left kidney was nearly twice its normal size. Treatment by the usual methods was ineffectual. Emetine was injected ; 2cgm. the first day, 6cgm. on the second and third, 8cgm. on the fourth and following days until 1 gm. had been injected in 16 days. From the beginning of this treatment the condition started to improve, but after an interval a second course was administered. The amoebae became very scarce, the renal enlargement diminished and the patient left on May 5th. Improvement was maintained so that he was able again to undertake light work. Faecal examinations at no time revealed any amoebae, nor had there been any intestinal symptoms.

H. Harold Scott.

WORSLEY (A. N.) & BATEMAN (J. E.). **A Case of Urinary Amoebiasis.**—*Jl. Trop. Med. & Hyg.* 1924. Oct. 15. Vol. 27. No. 20. pp. 278–279. [3 refs.]

The patient, an Englishman of thirty years of age, suffered from three attacks of strangury with frequency of micturition and vomiting of bile and mucus. The bladder pain was referred to the right testicle and attended by diarrhoea and tenesmus. X-ray examination revealed no renal calculus. *E. histolytica* cysts were found in the faeces. A microscopic examination of the urine revealed a faint cloud of albumin, red blood corpuscles, a moderate number of pus cells, and a considerable number of rounded bodies from 10–30μ in diameter ; most were spherical, a few pear-shaped showing clear pseudopodia. In only one was definite movement detected, and on comparing them with figures of the pre-cystic stage of *E. histolytica*, they were found to agree.

Treatment consisted of emetine bismuth iodide 3 grains by the mouth combined with emetine hydrochloride ½ gr. hypodermically for five days. During treatment the amoebae in the urine became spherical and showed no pseudopodia. The authors think this was a case of urinary amoebiasis with infection of the kidney or of its pelvis.

P. H. M-B.

PETZETAKIS. **Cystites amibiennes. Cystite amibienne à "Entamoeba polymorpha." Y a-t-il une urétrite amibienne ?**—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1924. July 31. 3rd Ser. Year 40. Vol. 48. No. 27. pp. 1227–1230. With 2 figs. [2 refs.]

Amoebae may become localized in the pelvis of the kidney or in the bladder, and may be found in the urine during the course of an acute dysentery. A case is cited of haematuria and frequency of micturition in a

young man in whose urine these organisms were found and who was permanently cured after six injections of emetine. The characters of the amoeba found are such as to leave no doubt in the author's mind that he is dealing with a new type of organism, provisionally named *Entamoeba polymorpha*. A case of urethritis, also said to be of amoebic origin and cured by five injections of emetine, is cited.

[The figures of the "entamoeba" which illustrate this article are extremely crude, for neither in the vegetative forms nor in the cysts depicted, stained or unstained, do they bear any resemblance to these familiar protozoa.]

P. H. M-B.

EMILE-WEIL (P.) & LAMY (A.). **Un cas d'abcès amibiasique du poumon guéri par l'émétine.**—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1924. Oct. 23. Year 40. 3rd Ser. Vol. 48. No. 29. pp. 1408–1411. [2 refs.]

The authors record a case of pulmonary embarrassment with pyrexia, which they attributed to an abscess of the lung of amoebic origin.

In 1919 the patient had resided 3 months in Algiers, where he had a serious attack of diarrhoea which subsided spontaneously; there was no hepatic involvement. In May, 1924, he was admitted to hospital suffering from pulmonary trouble, the signs indicating partial consolidation of the right lower lobe. X-ray examination revealed a somewhat dense shadow between the second and fourth intercostal spaces. The abundant sputum contained no amoebae. A remarkable improvement in his physical signs and condition took place the moment emetine therapy was instituted; the muco-purulent sputum ceased within 24 hours, while an X-ray examination revealed only a faint opaqueness at the site of the former lesion. Six injections of emetine (0·04 gramme per day) appear to have been sufficient.

The diagnosis of pulmonary amoebiasis, with a coexistent amoebic dysentery, may be comparatively easy; it may have to be made, as in the present instance, on concurrence of suggestive circumstances.

P. H. M-B.

VILA CORO (A.). **Irido-ciclitis amebiana.**—*Rev. Méd. de Barcelona.* 1924. Aug. Year 1. Vol. 2. No. 8. pp. 130–145.

The author describes in minute detail a condition of irido-cyclitis which, if treated on the usual lines, does not clear up but slowly progresses to total destruction of the eye. The symptoms of cyclitis precede those of iritis. Pain, at first supraorbital, is considerable; photophobia is not usually present. The prognosis depends on the stage at which the patient comes under treatment and on the recognition of the cause. This is said to be the toxins produced by the *Entamoeba coli* [not *E. histolytica*]. All the patients referred to were passing this protozoon or its cysts in their faeces. Treatment by emetine injections—4 cgm. for three consecutive days, then 8 cgm. for another three, and 12 cgm. for three more, 72 cgm. in all—brings about a rapid cure if the patient is seen sufficiently early. The *E. coli* also disappears from the stools. Locally, a solution containing atropine sulphate, adrenalin, dionin and mercuric cyanide is used. The author believes that the *E. coli*, without penetrating the intestinal mucosa, produces toxins which are absorbed by it.

H. Harold Scott.

i. KESSEL (John F.). **Methods of obtaining Amoeba-Free Rats for Experimental Infection with Intestinal Amoebae.**—*Univ. California Public Zool.* 1923. Oct. 31. Vol. 20. No. 18. pp. 401–408. [9 refs.]

ii. ——. **Experimental Infection of Rats and Mice with the Common Intestinal Amoebae of Man.**—*Ibid.* No. 19. pp. 409–430. With 2 plates. [21 refs.]

i. For cleaning rats of existent intestinal microparasites for subsequent experimental infections, as well as for other purposes, the author recommends merely feeding them on bread soaked in a saturated solution of mag.-sulph. Young rats, naturally, are the best for experimental work.

ii. The author infected rats with five species of human amoebae—including *E. histolytica, E. coli* and *Councilmania lafleuri*—by feeding them with human faeces containing the respective cysts, and from the faeces of the rats so infected he succeeded in infecting other rats (by feeding). The species thus transferred from the human to the rat host underwent no apparent morphological change. Infections of *E. histolytica* in rats and mice assumed apparently a chronic form, and one of four rats that died had an intestinal ulcer. From the result of these experiments the author concludes that "heavy suspicion is thrown on the rat and mouse as possible carriers of the causative organisms of human amoebiasis." Full details are given.

A. Alcock.

KOFOID (Charles A.), SWEZY (Olive) & KESSEL (John F.). **On the Genus Councilmania, Budding Intestinal Amoebae Parasitic in Man and Rodents.**—*Univ. California Public. Zool.* 1923. Oct. 31. Vol. 20. No. 20. pp. 431–445. With 19 text figs. [11 refs.]

The genus *Councilmania* of Kofoid and Swezy, the natural basis of which is impugned by some good authorities, is here again defined, and two species besides the genotype (*C. lafleuri*) are now included in its compass, these species being *Amoeba muris* Grassi (*Entamoeba muris* Wenyon, *ex parte*) and *E. muris decumanus* Rudovsky. All three species are here defined, figured, and brought into perspective.

A. Alcock.

i. JACONO (Igino). **Le coliti amebiche. (Nosografia e diagnosi.)**—*Riforma Med.* 1924. Oct. 27. Vol. 40. No. 43. pp. 1017–1019. With 3 figs.

ii. PANAYOTATON (Angelika). **Die extraintestinale Amöbenerkrankung in Aegypten. Amöbenerkrankung und Tuberkulose.**—*Wien. Klin. Woch.* 1924. Aug. 14. Vol. 37. No. 33. pp. 801–802.

iii. PETZETAKIS (M.). **A propos des bronchites amibiennes.**—*Bull. Soc. Path. Exot.* 1924. July 9. Vol. 17. No. 7. pp. 553–554. [5 refs.]

iv. COUVY (L.). **Note sur le traitement de la dysenterie amibienne par le stovarsol.**—*Ibid.* pp. 555–556. [4 refs.]

v. PHEAR (Arthur G.). **The Treatment of Dysentery. II.—Amoebic Dysentery.**—*Lancet.* 1924. Aug. 9. pp. 284–285.

i. A sketchy review of amoebic dysentery from the clinical aspect.

ii. This article on pulmonary amoebiasis differs in no wise from the several papers which have recently been reviewed in this *Bulletin*.

iii. Petzetakis claims priority in the description of "amoebic bronchitis" [a very problematical condition], which is an invasion of the bronchi by amoebae and comparable to a similar condition produced by spirochaetes in broncho-spirochaetosis. Pulmonary amoebiasis is due to actual abscess formation in the lung itself.

iv. Briefly relates recent experiences in the treatment of amoebic dysentery with stovarsol. The dose was 6 cgm. daily. Three cases are cited.

v. This concise and well-written article contains an account of the general principles upon which the modern treatment of amoebiasis is based and deals as well with diagnosis.

P. H. M-B.

Bacillary Dysentery.

Cunningham (J.). Theodore (J. H.) & Krishnan (K. V.). **Further Observations on Latent Dysentery.**—*Indian Jl. Med. Res.* 1924. July. Vol. 12. No. 1. pp. 83–92.

The term "latent dysentery" denotes a state occurring in individuals amongst normal populations who, while capable of normal work, and showing no manifest signs of illness, are nevertheless the subjects of pathological lesions. The amount of latent dysentery in any population forms a definite index of the prevalence of the disease in the community. The paper is based upon the records of three separate investigations. The first was undertaken by Bateman in a military community; the other two on prisoners during the Moplah rebellion. In these investigations the whole stool of each individual is examined macroscopically for the presence of mucus or any other abnormality. The percentage of abnormals detected agrees very closely in each series. The percentages recorded are 9·6, 7·9, and 7·7 per cent. In Bengal it was shown that a single examination was not sufficient, but that ten successive examinations were requisite. The proportion of latent dysentery cases may be regarded as constituting a "dysenteric index" much in the same way as the spleen rate in malaria. From a single bacteriological examination dysentery bacilli were isolated in 5 per cent. of one series and in 21·1 per cent. of the other. The excretors of dysentery bacilli may be in apparent good health. Diarrhoea, unless proved to be due to another cause, should be considered as latent bacillary dysentery. A series of 12 macroscopic examinations should suffice to detect all but a negligible quantity. The dysenteric index in the jails in Eastern Bengal was found to be 19·8 per cent. [See also Vol. 21, p. 38.]

P. H. M-B.

Ukil (A. C.). **Is there an Outbreak of Bacillary Dysentery in Calcutta?**—*Calcutta Med. Jl.* 1924. July. Vol. 19. No. 1. pp. 33–36. [4 refs.]

Bacillary dysentery due to Shiga or Flexner bacilli is uncommon in Calcutta; in cases of gastroenteritis, which are frequent in the rainy season, organisms of the Gaertner group are more commonly encountered. During the current year, bacillary dysentery seems to be on the increase, and during the three months May to July, Shiga's bacillus has been isolated 12 times, Flexner's bacillus twice, out of 80 samples of faeces received. Only one case, as far as is known, proved fatal.

P. H. M-B.

LITTLE (E. Marjory) & ROSS (Marjory J.). **Dysenteric Conditions in Children.**—*Med. Jl. Australia.* 1924. July 5. 11th Year. Vol. 2. No. 1. (Supplement.) pp. 472–474. [9 refs.]

The disease can be diagnosed with certainty only by the recovery of the bacillus from the stools. This depends upon three factors: the period of the disease at which the stool is examined, the lapse of time between the collection of the material and its examination, and the selection of the material.

The patients of one group were usually under one year of age, with a history of chronic intestinal disturbance, attacks of diarrhoea alternating with constipation. The stools were usually green, and contained much mucus with occasional streaks of blood. As a rule the mortality rate was high. No known pathogenic organisms were recovered from the faeces.

In a second group the patients were acutely ill, with a history of suddenly developed diarrhoea with colic and tenesmus. No dysentery bacilli were isolated, but Morgan's bacillus No. 1 and members of the Salmonella group.

In the third group the ages of the patients ranged from three months to seven years. The onset of the disease was that of a true dysentery with abdominal pain and sometimes vomiting. *Bacillus dysenteriae* was recovered from 117 cases.

For the collection of material it was found best to wash out the bowel with sterile normal sodium chloride solution. The first and last portions of the fluid returned were sent to the laboratory for examination. A higher percentage of positive findings were obtained when washed mucus was examined than from inoculation with faecal material.

Three types of dysentery bacilli were isolated. Flexner-Y organisms were recovered from 86 cases; Shiga's bacillus from six cases. Late lactose-fermenting organisms were obtained in twenty-five cases, of which twenty were agglutinated by Sonne antiserum, and could therefore be classed with that group. *Bacillus dysenteriae* was isolated in the majority (75 per cent.) of those stools which contained blood. Clinically the patients with bacillary dysentery presented a striking picture.

In treatment a polyvalent serum, made by the Commonwealth Serum Laboratories from strains of Flexner's bacillus, Shiga's bacillus, and a Sonne bacillus isolated in Australia, was employed. 30 cc. was found to be the most satisfactory initial dose, and the intraperitoneal the best method of administration. By this method 30 cc. of serum are added to 150 cc. of a solution of 5 per cent. glucose in normal saline. The fluid is warmed to body temperature and allowed to gravitate through a funnel into the peritoneal cavity. Of eighty patients of this series who received serum eighteen died, that is 22 per cent.; of thirty-one patients who did not receive serum thirteen died, that is 41·9 per cent.

P. H. M-B.

BEARE (F. H.). **Dysenteric Conditions in Children.**—*Med. Jl. Australia.* 1924. July 5. 11th Year. Vol. 2. No. 1. (Supplement.) pp. 474–475.

The official statistics issued in the Commonwealth Year Book indicate that the true importance of dysentery as a cause of death has

not been fully recognized; this applies to adults as well as children. In the Adelaide series no Shiga infection was found, Flexner's bacillus, and in one case that of Sonne, being responsible. There is a close association between flies, horses and the incidence of dysentery; probably this is explicable by the fact that these insects breed in horse manure. Thus of fifty-one homes from which dysentery patients came, horses were associated in forty-one, or 80 per cent.

P. H. M-B.

SMITH (J.). **Enteritis due to** *B. dysenteriae*, **Sonne.**—*Jl. of Hyg.* 1924. Sept. Vol. 23. No. 1. pp. 94–97. [10 refs.]

In December, 1923, a small outbreak of enteritis occurred in a ward of the City Hospital, Aberdeen, involving four infants of ages ranging from 5 to 15 months.

Fever was accompanied by a corresponding pulse-acceleration with the passage of mucus and, in two cases, of blood in the stools. From the faeces of two out of the four cases non-lactose-fermenting colonies were obtained; the organisms produced acid out of glucose and mannite, were non-motile, did not liquefy gelatin, nor produce indol. Both strains were pathogenic for rabbits, and when compared with *B. dysenteriae*, Sonne, from the National Collection of type cultures, were found to be very similar and completely absorbed the agglutinins from specially prepared serums. The serum of the patients agglutinated the two strains to a dilution of 1 : 480, but did not react with well-known types of Flexner and Shiga bacilli. When tested against monovalent serums prepared from *B. dysenteriae*, Flexner, V, W, X, Y & Z, it was found that the first mentioned agglutinated all the strains to a titre of 1 : 400, but absorption tests showed that the homologous agglutinins were not removed. Efforts to trace the source of infection were unsuccessful.

P. H. M-B.

POSSELT (Adolf). **Gallenwege- und Lebererkrankungen bei Bazillenruhr.** [Affections of the Bile Passages and Liver in Bacillary Dysentery.]—*Wien. Klin. Woch.* 1924. Sept. 25. Vol. 37. No. 39. pp. 987–993. [10 refs.]

The author considers that, in consequence of the mass-experiment of the war, bacillary dysentery must now be regarded as a possible cause of disease of the liver and bile passages. He thinks the reason why this important factor has been missed is the remoteness in time of the original illness and possibly often the unobtrusiveness of the symptoms, which may have been mild or atypical. Undoubtedly bacillary dysentery belongs to the group of diseases whose full import is often missed; its sequelae are numerous and could best be observed either in the special dysentery hospitals during an epidemic or in the convalescent camps. Just as in the typhoid-coli group, extra-intestinal infections or primary infections of the liver and bile passages may occur. The dysentery bacillus may persist in the gall bladder [? on what evidence] presumably owing to a bacillary dysentery "bacteriaemia," which probably explains the carrier state in this disease. In all affections of the liver and gall bladder the serum

should be tested for dysentery agglutinins as is done in the typhoid group. Protocols are given in this paper of cases of jaundice, cholangitis, cholecystitis (40 cases), cholelithiasis (18 cases), liver abscess (4 cases), all of which are said to be ascribable to infection with Shiga or Flexner bacilli.

P. H. M-B.

SSYSSOJEW (Th. Th.). **Ueber die Veränderungen der Gekröselymphknoten des Dickdarms bei Dysenterie in Kindesalter (mit Berücksichtigung einiger hämatologischer Fragen).** [Changes in the Mesenteric Lymph Glands of the Colon in Dysentery of Children. Some Haematological Questions.]—*Virchows Arch. f. path. Anat. u. Physiol.* 1924. June 6. Vol. 250. No. 1/2. pp. 15–29. [5 refs.]

The mesenteric lymph glands were examined in 12 fatal cases in children ranging from 3–4 years of age. Macroscopically the glands present a characteristic appearance, being 3–15 mm. in length, and bean-like in shape and size. Microscopically they show oedema and confusion of medulla and cortex. A deposition of fibrin also takes place and this can be seen in the blood vessels as well as in the collagenous fibres of the capsule. The most striking feature is distension of the sinuses, which in the necrotic cases are filled with blood. Extravasated red blood corpuscles can be distinguished in the stroma. The histological picture is that of a haemorrhagic fibrinous lymphadenitis.

P. H. M-B.

SSYSSOJEW (Th.). **Der blutbildende Apparat bei der Dysenterie.** [The Blood-forming Apparatus in Dysentery.]—*Virchows Arch. f. path. Anat. u. Physiol.* 1924. June 6. Vol. 250. No. 1/2. pp. 41–53. [3 refs.]

This paper is based upon a study of 15 fatal cases of dysentery in children of 1½–12 years of age, the duration of the illness varying from 7 days up to 6 weeks. The bone marrow, spleen, thymus and mesenteric lymph glands were examined in every case. The bone marrow shows inflammatory changes, the sinusoids being distended and filled with blood. One particular cell is present which the author considers to be characteristic of dysentery: it is apparently a large lymphocyte and is generally observed only in the lymph apparatus. The other striking change is seen in the megakaryocytes, which become extremely numerous about the 15th–18th day of the disease; the cells themselves show considerable intrinsic changes. These degenerative changes coincide, the author thinks, with a diminution in the number of blood platelets in the blood stream, and are due to the action of the dysenteric toxin upon the bone marrow. Macroscopically the spleen is not altered. Microscopic section shows that the Malpighian corpuscles react to the hyperplastic process with an influx of lymphocytes which also invade the pulp tissue. The changes in the thymus correspond to those seen in other intoxications. The remainder of the paper is occupied by theoretical considerations of the result of the changes in the blood-forming organs upon the cells of the circulating blood.

P. H. M-B.

GOTTSCHALK (Charlotte). **Ueber Beobachtungen am Blutbilde bei einer Ruhrendemie.** [The Blood Picture in Dysentery.]—*Muench. Med. Woch.* 1924. Sept. 26. Vol. 71. No. 39. p. 1358. [7 refs.]

Blood examination was undertaken in a series of eighteen cases in an epidemic of bacillary dysentery. In 61·1 per cent. an absence of eosinophile cells was demonstrated. At the termination of the illness the eosinophile cells rose to normal (2–4 per cent.). In other severe cases of intestinal disturbance, due to tuberculosis, carcinoma, sublimate poisoning, etc., a similar aneosinophilia was observed.

P. H. M-B.

LICHTENSTEIN (A.) & VAN STEENIS (P. B.). **Atypische bacillaire dysenterie.**—*Nederl. Tijdschr. v. Geneesk.* 1924. Sept. 13. Vol. 68. 2nd Half. No. 11. pp. 1359–1370. [18 refs.].

An account of atypical cases of dysentery, with slight clinical symptoms, observed in Batavia. It is written for the benefit of practitioners in temperate regions, who often do not recognize this disease in its atypical form, though the patient may be a source of infection for his surroundings, notwithstanding the absence of grave symptoms.

A description is given of the bacteriological technique used and the value of the Widal test in bacillary dysentery is discussed. A negative result does not prove anything; a positive only if the agglutination takes place in a dilution higher than $\frac{1}{400}$ with atoxic dysentery bacilli (comprising the types Flexner, Strong, etc.) and $\frac{1}{200}$ with the bacillus of Shiga-Kruse.

The atypical cases are usually caused by the bacilli of the atoxic type, but five cases are recorded where the Shiga-Kruse bacillus (belonging to this type by its cultural characteristics) was found. In two of these cases the strain had lost its toxicity for rabbits; in one this was still perfectly intact, although the patient from which they came was hardly ill. Fifteen atypical cases are described where the atoxic type of bacillus was found. Concerning the differential diagnosis it is stated that in malaria with dysenteric symptoms there is always a concomitance of both causative agents and that "malaria dysenterica" caused by plasmodia alone does not exist.

N. H. Swellengrebel.

GUIMARÃES (Aristides). **Soro-diagnostico na dysenteria bacillar.**—*Brazil Medico.* 1924. July 12. Year 38. Vol. 2. No. 2. pp. 15–19.

The diagnosis of infection by one or other of the bacilli of dysentery is important from two points of view. Firstly, dysenteric symptoms may be caused by other than true dysentery bacilli, such, for example, as *B. paratyphosus* A, *B. tuberculosis*, etc.; secondly, dysentery bacilli may cause an illness simulating, for example, typhoid fever.

From an analysis of 175 cases the author concludes that agglutination is a reliable test, a 24 hours' culture emulsified in normal saline being used. By microscopical methods the results are read after 1–2 hours at 37° C., by macroscopical after 8–24 hours at laboratory temperature. He finds the macroscopical better than the microscopical. The test should be carried out "twice during the acuter stages and once during convalescence." It is usually positive 7 days after the onset. Vaccine

treatment, he affirms, does not affect the agglutination titre. At the beginning of the epidemic the number of positive results obtained was as high as 75 per cent., whereas six months afterwards it was only 37 per cent., but the titre of agglutination was much higher in the latter.

H. Harold Scott.

PASCAL (C.). **Vaccination antidysentérique par voie buccale.**—*C. R. Soc. Biol.* 1924. Oct. 24. Vol. 91. No. 29. pp. 874–876.

Two epidemics of bacillary dysentery broke out in an asylum at Châlons-sur-Marne in 1923 and 1924; their exact origin was never discovered.

The first occurred towards the end of 1923. Within 10 weeks 65 persons out of a total of 256 had been attacked. In April, 1924, two new and rapidly fatal cases were discovered, followed by seven others. It was then decided to protect the remaining occupants, in all 399 persons, with the antidysenteric entero-vaccine of Besredka. The greater number of the inmates were cardiac, tuberculous and syphilitic subjects, but all took the vaccine pastilles without any reaction. The vaccine was given in two portions. During the first course of immunization two new cases declared themselves. Three attacks of dysentery amongst the vaccinated subjects were subsequently notified, one of which was severe. The following figures were obtained :—

	Inmates.	Vaccinated.	Cases of dysentery in unvaccinated.	Cases in vaccinated.	Percentage sick.
1923	256	—	65	—	22·72
1924	410	399	—	3	0·75

The author considers these figures very suggestive.

P. H. M-B.

MANSON-BAHR (Philip) with a Section on the Operative Treatment in Collaboration with GREGG (A. L.). **The Pathology and Treatment of Chronic Bacillary Dysentery.**—*Jl. State Med.* 1924. Aug. Vol. 32. No. 8. pp. 356–366. [3 refs.]

In addition to the pathology and treatment this paper deals with the diagnosis of chronic bacillary dysentery. The author draws attention to the fact that, though the condition may start as a mild or subacute dysentery, it is, in most cases, chronic, as it were, from the beginning. The best means of obtaining the causative organism at autopsy is by washing the intestine free of faeces, scraping the base of the ulcer with a sterile knife, and plating upon a suitable medium the exudate from beneath the edge of the ulcer. Three lines of treatment are considered : (1) Dietetic.—Reasons are given to show that it is not the restriction of food to certain articles which is likely to benefit *per se*, but that it is the nature of the residue which maintains the condition by acting as an irritant to the inflamed bowel. (2) Lavage.—The authors do not think highly of this, and, moreover, they are of opinion that the quantity of fluid used is of greater importance than its constitution. Silver preparations, however, are specially proscribed. (3) Operation.—This part of the question is ably discussed. The indications for operative measures are first stated. These are : signs of toxic absorption, marked haemorrhage, grave destruction of the mucosa as seen by the sigmoidoscope, the formation of bleeding polypi and the absence

of improvement with lavage. The various operations, appendicostomy, caecostomy and ileostomy, are considered in turn. The first is the least satisfactory because it does not fulfil the end in view, namely, to rest the large bowel by preventing the entrance of intestinal contents into it. Caecostomy, of which the operative details are described, is better. It is preferably performed in two stages and after-care to protect the skin around the wound is important. Later, when there are no longer signs of toxic absorption, when the patient has improved in general appearance and has gained weight, and the large bowel, when examined from below by the sigmoidoscope and from above by a cystoscope through the caecostomy wound, is seen to be healed, the wound is closed. Lastly, ileostomy, though it precludes faecal matter from entering the large intestine, has the disadvantages of interfering with digestion, so that the gain in weight is less rapid, of frequently leading to excoriation of the skin from autodigestion, and of needing more frequent dressing, while subsequent closure of the bowel is more difficult. The fact that the specific organisms of dysentery play but a very small part in the later stages of the chronic disease explains the ineffectiveness of vaccines.

This paper will be particularly helpful in that the practitioner is not merely presented with a list of measures to choose from but is given reasons to aid him in making his choice.

H. Harold Scott.

Welch (T. B.) & Mascarenhas (C. J.). **The Treatment of Acute Bacillary Dysentery in African Labour.**—*Kenya Med. Jl.* 1924. Aug. Vol. 1. No. 5. pp. 132–137. [2 refs.]

In the course of 388 consecutive cases of acute bacillary dysentery the authors became dissatisfied with the customary methods of treatment. The series is divided into two groups :—

(*a*) 183 cases from October, 1921, to September, 1922. Deaths, 18·6 per cent.

(*b*) 205 cases treated between October, 1922, and March, 1924. Deaths, 4·9 per cent.

Cases in group (*a*) were treated with salines, bismuth salts, pulv. rad. rhei and izal. Irrigation of the colon *per rectum*, and normal and hypertonic salines intravenously was given as occasion arose. The diets of patients were restricted, but results confirmed experience that in the African restriction is harmful. When more food was given, the faecal matter appeared to be retained in the bowel. The authors believe that this retention is, if prolonged, an important factor in the production of intoxication.

Considerations such as these led to a review of the methods of treatment with the object of preventing delay in the small and the large intestine. To patients in good condition are given two ounces of Ol. ricini on the day of admission and on the second and third day one drachm hourly during the daytime ; usually a second similar course is given. They are detained in hospital for fourteen days after the last mucus has been passed in the motions. The stools are inspected daily so as to avoid relapses. The average number of days till the last symptom was noted in the second group is 10⅓. In dealing with native labour the great value of this method is its simplicity.

P. H. M-B.

WEBSTER (Reginald). **The Results of the Serum Treatment of Bacillary Dysentery in Children.**—*Med. Jl. Australia.* 1924. July 5. 11th Year. Vol. 2. No. 1. (Supplement.) pp. 475–476.

The 66 children included in this series were subjected to a rigid bacteriological control. 57 were infected with Flexner's bacillus and 9 with the Sonne bacillus.

The following statistics emerge :—

Total number of children	66	
Gross mortality	56	per cent.
Total mortality of the non-serum-treated ...	40·5	,, ,,
,, ,, ,, serum-treated	75·8	,, ,,

Results of serum injected on or before the fifth day :—

First Injection of Serum.	Number treated.	Recovered.	Died.	Mortality.
On or before fifth day ...	9	4	5	55·5 per cent.
After fifth day or none ...	57	25	32	56·1 ,, ,,

It has been the experience at the Children's Hospital that children who contract dysentery due to the Flexner bacillus when they have passed the age of infancy do well irrespective of serum treatment. The fairest presentation of the results may be embodied in a table from which all who received their first injection later than the fifth day are regarded as non-serum treated and children over two are omitted.

First Injection of Serum.	Number treated.	Recovered.	Died.	Mortality.
On or before fifth day ...	9	4	5	55·5 per cent.
Later than fifth day ...	47	15	32	68 ,, ,,

Average quantity of serum given ...	115 cc.
Smallest single dose employed	20 cc.
Largest single dose employed	250 cc.

The serum was administered by the subcutaneous and intraperitoneal routes.

P. H. M-B.

CRUZ (J. da Costa). **O bacteriophago em therapeutica.**—*Brazil-Medico.* 1923. June 2. Year 37. Vol. 1. No. 22. pp. 298–300. [3 refs.]

The author places on record an interesting series of cases of bacillary dysentery treated by bacteriophage with marvellous results. Twenty-four cases are given, the ages of the patients varying between 2 and 42 years. In twelve of them bacterial examination of the faeces was carried out and Hiss' bacillus was isolated 6 times, Flexner's 4, and Shiga's once. From one no organism was obtained. The stools of the remaining twelve were not examined bacterially.

There is marked similarity between the cases so that they can be grouped together. All, except one, were acute and all were passing frequent stools with mucus and blood. The bacteriophage was given by mouth in doses of 2 cc., usually once daily. In the chronic case, a man aged 36, who had had the disease for some years, no benefit resulted, but in the others pain ceased in a few hours, the stools were rapidly reduced in number and cure was obtained within 3 days, in some instances even less.

As regards the bacteriophage employed, the one mentioned is that from Shiga's bacillus; whether that was used throughout is not stated. [In view of the previous contradictory records of the effects

noted by D'HÉRELLE on the one side and OTTO and MUNTER on the other the remedy is one which merits and will doubtless be given further trial.]

H. Harold Scott.

CRUZ (J. da Costa). **Le traitement des dysenteries bacillaires par le bactériophage.**—*C. R. Soc. Biol.* 1924. Oct. 7. Vol. 91. No. 28. pp. 845–846.

During the last year the author prepared some 10,000 bottles of bacteriophage for distribution to hospitals in Brazil. The results obtained by various medical officers go to confirm the author's own experience of its value. He considers it superior to any other, because the symptoms ameliorate considerably within 4–8 hours and the patient is generally convalescent in 48. The cases which are not benefited are comparatively rare. Two fatal cases are recorded. The use of antidysenteric serum is still recommended in Shiga infections, as the dysenteric toxin is not entirely neutralized by the bacteriophage. Apparently chronic colitis of undetermined nature is considerably improved, and in some cases cured, by bacteriophage.

P. H. M-B.

SUDMERSEN (H. J.), RUNGE (B. F.) & O'BRIEN (R. A.). **Standardization of Anti-Dysentery (Shiga) Serum.**—*Brit. Jl. Experim. Path.* 1924. Apr. Vol. 5. No. 2. pp. 100–104.

The preparation and standardization of a " test " toxin and antitoxin are here described. Mice and rabbits were used, intravenous inoculation being employed throughout. The toxin is prepared by growing Shiga's bacillus on nutrient agar for 48 hours, washing off in distilled water and heating to lethal point, 58–60° C., for ten minutes, centrifuging and rapidly drying in a desiccator. Great variability in the potency of toxin was experienced ; " rough " colonies may produce as good toxin as smooth ones. Mice of 20 gm. were used for all confirmatory tests. The *minimal lethal dose* appeared to have a wide range ; 0·04 mgm. was needed to produce a fatal result in all mice, whereas some died when given 0·005 mgm. The test dose of toxin is made up to 1 cc. with normal saline solution and contains a weighed amount of toxin together with 0·025 cc. standard antitoxin. The mixture must be allowed to stand 30 minutes before injection. The standard antitoxin (C. 950) was chosen because it is apparently stable and the amount, 0·025 cc., is necessary to protect mice and rabbits against 10 lethal doses of toxin. For testing sera 0·2 mgm. of toxin " AA " has been adopted as the test dose. A table is given summarizing experiments by two investigators working independently to ascertain the ratio between the dose of toxin which, when mixed with 0·025 cc. of antitoxin, would cause 100 per cent. of deaths and those causing approximately 20 per cent. of deaths. The interval between the doses was found to be much wider than in standardization tests of diphtheritic and antitetanic sera.

As regards rabbits, great variation in the lethal dose of toxin was discovered, so that ultimately the dose chosen as a test dose of toxin was one which mixed with 0·025 cc. of serum C. 950 would kill all the rabbits injected ; this dose proved to be 0·2 mgm.

P. H. M-B.

KOLLE (W.), SCHLOSSBERGER (H.) & PRIGGE (R.). **Ueber Eigenschaften, Wirkungsart und Wertbestimmung des Dysenterieserums.** [Dysentery Serum, its Properties, Mode of Action and Evaluation.] —*Deut. Med. Woch.* 1924. Aug. 15. Vol. 50. No. 33. pp. 1105–1108. [15 refs.]

The authors note the lack of unanimity of view on the pathogenesis of bacillary dysentery. The object of their paper is to set forth the methods of preparing antidysenteric serum, the indications for its use and its mode of action. They agree with other investigators that the mouse is the most suitable laboratory animal not only for the testing of the virulence of the toxin, but also for estimating the curative effect of the antisera. Parallel results are obtained by using rabbits. They disbelieve in the duality of dysenteric toxin and were unable to obtain proof of the existence of an endotoxin. The toxin obtained by various methods from filtered bouillon cultures of Shiga-Kruse bacilli, from dried watery extracts, when mixed with antidysenteric serum, gave uniform results. On the other hand, very different results were registered with homologous or heterologous toxins. For instance, a typhoid-immune serum has apparently no neutralizing action upon the toxins of Shiga-Kruse bacilli.

Experiments made with living dysentery bacilli and antidysenteric serum in mice suggest that improvements in the rapidity and sureness of its antitoxic properties are highly desirable. The antitoxic properties of therapeutic antidysenteric serum must be considerably raised. Antidysenteric serum is a real antitoxic serum. The combination of antitoxin with the appropriate toxin follows the law of multiple proportions. Before a definite opinion on the curative properties of antidysenteric serum can be formulated further series of trials on dysenterics with highly potent therapeutic sera are necessary. The German standard toxin-test has been verified and confirmed by this work ; the authors, however, recommend that the dose of toxin should be doubled, for which purpose the preparations of the dried toxin have proved satisfactory.

P. H. M-B.

KONDO (Seigo). **Ueber die Auswertung der antitoxischen Dysenteriesera am Kaninchen.** [Evaluation of Antitoxic Dysentery Sera in Rabbits.]—*Muench. Med. Woch.* 1924. Sept. 26. Vol. 71. No. 39. pp. 1360–1362. [12 refs.]

The standardization of the antitoxin content of antidysentery serum, in order to obtain a constant unit, can be carried out in white mice and in rabbits. Apart from the higher cost of rabbits, Kondo considers the results obtained are by no means superior to those obtained from intravenous injection of white mice ; they are, however, comparable. It is difficult, if not impossible, to obtain rabbits of approximately the same weight, besides which the animals differ considerably in their susceptibility to one particular brand of toxin. The author considers that injection of serum and toxin into the animal on separate occasions or simultaneously are equally untrustworthy. On the other hand, the toxin-value should first be ascertained by mixing *in vitro*, and the mixture should be injected in separate fractional doses till the effects of the toxin are completely neutralized. He considers that in this basal fact the comparative therapeutic inefficacy of antidysenteric serum is to be explained.

P. H. M-B.

KANAI (S.). **Dysentery Immunization in Rabbits by the Oral Method.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore,* 1923. pp. 524–527.

Attempts were made to immunize rabbits against dysentery by the oral administration of killed vaccines by the Besredka method, three doses of one-fifth of a Roux bottle of dysentery bacilli being given ; the results were compared with those of a series of rabbits immunized by subcutaneous injection of three doses, one of 50 and two of 100 million. It was found possible to produce a certain, but small, degree of immunity by the oral method, but far inferior to that produced by the subcutaneous inoculation of carbolized vaccine. Attempts to secure a solid active immunity by oral and subcutaneous injections of killed vaccines against the soluble toxin of *B. dysenteriae* (Shiga) injected intravenously have not been attended by striking success. The antibody-content of the serum of rabbits immunized *per os* is appreciably raised.

P. H. M-B.

LESBRE (Ph.) & VERDEAU (A.). **Essai d'immunisation expérimentale par voie buccale contre la dysentérie à bacilles de Shiga.**—*C. R. Soc. Biol.* 1924. Oct. 24. Vol. 91. No. 29. pp. 883–885. [1 ref.]

The authors endeavoured to ascertain the protection produced by immunization *per os* in rabbits. For this purpose six rabbits of the same weight (2 kilogrammes) were inoculated by means of a sound, with 1·5, 2·5, 5 or 10 cc. of a 3-day bouillon-culture of killed Shiga bacilli. The two animals which received the higher dose died 3–5 days afterwards. The four survivors were injected intravenously with 1 cc. of a bouillon-culture of the same organism. All died within twenty-four hours. No antibodies could be demonstrated in their serum. In the second test another series of rabbits received by ingestion 12–20 milliards of organisms. After intravenous injection 11–21 days afterwards, death took place and autopsy revealed characteristic intestinal lesions. In a third series it was ascertained that no immunity was produced 16 days after vaccination. In the fourth series of 9 rabbits the results were inconclusive. To summarize:—24 rabbits ingested on one or more occasions Shiga bacilli in doses from 4–36 milliards. Four died as the direct result ; 13 died after intravenous injection as rapidly as did the control animals ; 2 developed paralysis as the result of this injection ; 1 recovered ; 1 was resistant, and this particular animal had been inoculated subcutaneously ; 4 were entirely refractory to intravenous injection and all had received massive doses by the mouth.

P. H. M-B.

i. NEUFELD (F.). **Zur Wertbestimmung des Ruhrheilserums. Nach Versuchen von Dr. Papamarku, früherem Assistenten am Institut.** [The Evaluation of Antitoxic Dysentery Serum.]—*Deut. Med. Woch.* 1924. Aug. 1. Vol. 50. No. 31. pp. 1043–1044. [2 refs.]

ii. PŘIBRAM (Ernst). **Die Diagnose und ätiologische Therapie der Bacillenruhr**—*Seuchenbekämpfung.* Vienna. 1924. Vol. 1. No. 1/2. pp 15–18.

iii. PHEAR (Arthur G.). **The Treatment of Dysentery. I.—Bacillary Dysentery.**—*Lancet.* 1924. Aug. 2. pp. 232–233.

i. Killed agar-cultures of dysentery bacilli are preferable to bouillon

toxins for the purpose of testing antidysenteric sera. In experiments on mice no comparison can be sustained between the antitoxic titre of sera and their anti-infectious properties.

ii. A text-book account of the etiology, pathology, diagnosis and treatment of bacillary dysentery containing no original observations.

iii. This article calls for little comment. The author's method of treating acute and chronic bacillary dysentery is based upon sound and generally accepted lines.

P. H. M-B.

Mixed and Unclassed Dysentery.

Acton (Hugh W.) & Knowles (R.). **On the Dysenteries of India.**—*Indian Med. Gaz.* 1924. July. Vol. 59. No. 7. pp. 325–336. With 1 plate. [22 refs.]

That recent advances in the means of differentiating types of dysentery have hardly been appreciated in India is shown by the almost universal use of emetine in bacillary dysentery, a line of treatment which may inflict irreparable damage. The position of *Balantidium coli* as a cause of dysentery is still obscure, while *Schistosoma mansoni*, not being an indigenous parasite, can be eliminated and dysenteries associated with malaria and kala-azar are generally of amoebic or bacillary origin. The experience of the authors during the years 1920–1923 is that bacillary dysentery is at least five or six times as common in Calcutta as amoebic dysentery. This disease is relatively frequent in the wind-swept desert regions, whereas that is common in the city districts where the water supplies may be contaminated. Bacillary dysentery is an acute febrile disease necessitating in-patient treatment, while amoebic is characteristically an out-patient dysentery. Amoebic ulceration may be present in the colon without evoking any symptoms of disease, as in the autopsies cited of two lascars accidently suffocated in a barge in Mesopotamia in 1917. In bacillary dysentery the blood in the faeces tends to be of a bright red colour, whereas in amoebic it is darker and browner; in the former the reaction is alkaline to litmus paper, in the latter acid, the pH being about 6·3, as in the accompanying table:—

	No. of observations.	pH findings: mean and standard deviation.
E. histolytica, actively motile	25	6·35 ± 0·2988
E. histolytica, dead or dying, vegetative	22	7·00 ± 1·1118
E. histolytica, cysts	51	7·24 ± 0·2535
Charcot Leyden Crystals present ...	54	6·96 ± 0·2909
Bacillary Dysentery Stools	23	8·11 ± 0·1679

In the absence of *E. histolytica* it is possible to give a diagnosis of the type of dysentery from a study of the cellular exudate in the stool, for which purpose a stereoscopic binocular eye-piece (× 12·5) with $\frac{1}{7}$ in. oil-immersion objective is the most useful. Besides the familiar features of the cellular exudate, a study of the red blood corpuscles is useful. In amoebic dysentery they tend to collect in rouleaux, in bacillary there is an absence of any change in these cells. The appearance of Charcot-Leyden crystals is almost pathognomonic of amoebic infections. Mixed dysentery may occur; the authors have treated patients for amoebic dysentery who have subsequently returned

with an attack of bacillary, and the latter may supervene in an *E. histolytica* carrier. Examination of a stool more than two hours after it has been passed is useless. If specimens have to be sent to a distant laboratory, films of mucus should be dropped into Schaudinn's fixative and subsequently stained. The present method adopted by the authors is as follows:—

(1) The patient is kept strictly in bed for ten days.

(2) A milk diet having been prescribed, the patient is treated for the first six days on the following lines:—Early in the morning a full dose of saline aperient is given to clear out the colon; this is followed by DEEKS' bismuth treatment—2 drachms of bismuth carbonate every four hours, administered in half a glassful of water, preferably soda water. The tendency is to convert the acid colon contents to alkalinity, which is unfavourable to the entamoebae. Two and a half hours after the first dose of bismuth one grain of emetine hydrochloride is given subcutaneously; the drug exerts its maximal effect in an alkaline medium. After six days of this treatment all drugs, except the administration of a morning saline aperient, are suspended for three days. Emetine inoculations are now recommenced till the patient has received 12 injections, which are as much as he can safely stand. An intestinal antiseptic, such as Yatren (No. 105 Behring Werke iodo-oxyquinolin-sulphonic acid) is given in 7½ grain pills three times on the first day, six on the second, third and subsequent days. Clinically it is of value, presumably due to the liberation of quinolin in the colon. If pushed the drug has a tendency to cause diarrhoea. If six consecutive daily examinations of the stool have failed to show *E. histolytica* the patient can be discharged from hospital, but it by no means follows that he is absolutely cured. The after-cure consists in taking three times daily two drachms of extract of Kurchi for three weeks. Chronic amoebic cases should receive vaccine treatment of intestinal streptococci.

Chronic bacillary dysentery should be treated with vaccines of dysentery bacilli combined with potassium iodide by the mouth. Chronic dysentery leads in time to the production of the "chronic abdomen"—in both types of chronic dysentery adhesions may have formed, especially at the flexures, and visceroptosis result. Such patients show a well-marked syndrome of alternating constipation and diarrhoea. Together with mechanical obstruction and muscular defect a toxaemia occurs from absorption of intestinal toxins. In adult female patients there is an endocrine deficiency, the ovarian and thyroid mechanism being specially affected. A well-fitting abdominal belt should be provided, and glandular therapy $\frac{1}{6}$–$\frac{1}{4}$ of a grain of dried thyroid extract combined with 2 grains of dried ovarian extract daily. [This paper is illustrated by a most admirable plate.]

P. H. M-B.

HAUGHWOUT (Frank G.). **Observations on the Interpretation of the Microscopic Picture in Dysentery and other Intestinal Disorders.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 482–512. With 14 figs. [19 refs.]

This paper is an appeal to the general practitioner in the tropics to make himself familiar with the differential diagnosis of the dysenteries, and especially to understand and to appreciate the interpretation of the microscopic picture of the exudate in the faeces (cytodiagnosis).

It is the author's opinion that any physician who has been properly trained could be taught in a few weeks' study to make a quick and safe diagnosis in dysentery with the equipment of a microscope and a few simple reagents. One of the most important demonstrations during recent years is the relative infrequence of amoebic dysentery. In dealing broadly with the intestinal problem, it must be understood that non-specific gastro-intestinal disorders are of frequent occurrence in the tropics, and in the large cities usually outnumber the dysenteries; but in view of the information gathered since the war, it may be stated that bacillary dysentery is always the predominating form of dysentery, and may be said to exceed that of protozoal origin by 9 : 1. The Government of every country in the tropics, as a part of the general public health programme, should make it possible for every physician in the public health service to receive a course of coprology. In applying the method of cytodiagnosis to dysentery and other affections, the cardinal principle is to fix clearly in mind the cellular picture of *acute bacillary dysentery*. Pus of itself does not necessarily betoken bacillary dysentery if macrophages and ghost cells are absent. In making a diagnosis of dysentery from a study of the exudate, the following points should be borne in mind:—

(1) Exclude bacillary dysentery; this is not difficult to do, particularly two or three hours after the onset.

(2) Make no diagnosis of amoebic dysentery except on the findings of amoebae certainly *E. histolytica.*

(3) Cases of balantidial dysentery should be studied with special care, as the exudate closely resembles that of bacillary dysentery. It is very easy to miss the diagnosis in a bacillary dysentery developing in a carrier of *Balantidium coli.*

Cases illustrating various points are cited. The remainder of the paper consists of a résumé of the literature of dysentery.

P. H. M-B.

HAUGHWOUT (Frank G.). **The Microscopic Diagnosis of the Dysenteries at their Onset.**—*Jl. Amer. Med. Assoc.* 1924. Oct. 11. Vol. 83. No. 15. pp. 1156–1160. With 3 text figs. [7 refs.]

This paper is to a great extent a repetition of an earlier one (see above). In the author's opinion too much has been written for the consumption of the general practitioner on amoebiasis and amoebic dysentery. Such aids to the identification of the protozoa tend to bewilder; very little protozoology, indeed, is learned from printed descriptions and figures. It is possible for any physician with a microscope to make an easy and correct differential diagnosis of the dysenteries. The three essentials in the successful management of a case of dysentery are:—

1. Its differentiation from acute diarrhoea or other intestinal disorders.
2. The early and accurate determination of the type.
3. Prompt, adequate and sustained treatment with the appropriate remedy as indicated by the laboratory findings.

A fatal outcome in dysentery is usually due to one of the following causes:—(1) Delay on part of patient seeking medical advice; (2) failure to make correct diagnosis; (3) failure to administer treatment

in adequate dosage; (4) failure to treat complicating symptoms; (5) inability to counteract overwhelming toxaemia, and (6) neglect of secondary infection supervening.

P. H. M-B.

LINS (Abelon). **Sobre o *Spirochaeta eurygyrata* e a Dysenteria espirillar.**—*Arch. Brasileiros de Med.* 1924. July. Vol. 14. No. 7. pp. 420–426. [23 refs.]

The *Spirochaeta eurygyrata* is described, and its staining reactions and other properties. Cultural and inoculation experiments proved negative. As to pathogenicity the author concludes that, as a rule, it is only saprophytic, though not impossibly it may at times penetrate the epithelial lining and become pathogenic. He failed to find it in 11 cases of dysentery, but it was present in 27 out of 39 patients with loose stools, and in 33 per cent. of apparently healthy persons whom he examined.

H. Harold Scott.

BERNARD (Léon) & THOMAS. **Sur deux cas d'éntero-colites à protozoaires guéris par le stovarsol.**—*Bull. Acad. Méd.* 1924. June 24. Year 88. Vol. 91. 3rd Ser. No. 26. pp. 800–804.

Two rather remarkable cases are here recorded. Both patients had lungs badly damaged by tuberculosis, besides being long sufferers from painful enteritis. The first was a boy of 17 years, with a history of diarrhoea and colic of several years' duration; his stools contained many Giardia cysts. After an 8 days' course of stovarsol (0·25 gm. daily) the parasites, encysted and free, were still present. At an interval of 11 days he was again put for 19 days on the same daily dose of stovarsol, after which his stools became of normal consistence, and the parasites disappeared, although frequently searched for during the following 40 days. The second case was a man of 47, who had suffered from dysentery for about 17 years, with recurrent exacerbations of tenesmus and slimy and bloody flux; his larynx as well as his lungs were badly affected with tubercle, and he was also syphilitic; when admitted, emaciated and full of wretchedness, he was in one of his acute relapses, and multitudes of *Balantidium coli* were found in his evacuations. After a first course of stovarsol—0·50 gm. daily (in four doses) for 9 days—the Balantidia were still observed. At an interval of 11 days the daily stovarsol was repeated for a term of 24 days, in the course of which the stools became normal and the Balantidia disappeared. In neither of these cases was the tubercle trouble worsened by the stovarsol. The authors expatiate on the happy results of examining stools in every case of diarrhoea, leaving nothing to inference.

A. A.

CAMPOS (Ernesto de Souza). **Contribuição para o estudo anatomo-pathologico da dysenteria balantidiana.**—*Sciencia Medica.* Rio de Janeiro. 1924. July 31. Vol. 2. No. 7. pp. 331–359. With 10 text figs. [73 refs.]

A minute description of naked-eye and microscopical changes, found in the large intestine of a child dying two days after admission to hospital, suffering from infection with *Balantidium coli*. Much of

the paper is occupied by a comparision of these changes with those recorded by others. The whole of the large intestine from the appendix to the rectum was involved. With the exception of small ulcers and some superficial necrosis and an enlargement of the lymphatic glands (and these were not characteristic), there was nothing particularly noteworthy to the naked eye. Microscopically, the necrosis involved the mucosa and adjacent part of the submucosa only. The lesions were least marked in the appendix, but the parasites were present in considerable numbers throughout the large intestine and in all the coats. The vessels contained many. Those in the superficial layers were disintegrated, the deeper ones stained clearly. In their neighbourhood was marked round- and plasma-cell infiltration, and in the muscular tissue they were disposed along the muscle-planes and surrounded by a clear zone " like a trench dug by the parasite in traversing the intestine," but in spite of the large number of Balantidia in this region there was no necrosis. In the rectum there were bands of granulation tissue in a direction perpendicular to the wall. The lymphatic glands showed large numbers of Balantidia, in fact some of them seemed to be packed with them. Although many were found in the blood-vessels locally, examination of the other organs—lungs, stomach, duodenum, liver, kidney, pancreas and brain—revealed none, whence it would appear that the parasites are destroyed in the blood-stream. Eosinophilia was but slight.

H. Harold Scott.

Oi (Tsukasa). [**A Contribution to the Knowledge of Balantidium Enteritis in Formosa.**]—*Tokyo Ijishin-Shi* (*Tokyo Med. News*). 1924. June. No. 2375. [Summarized in *Japan Med. World.* 1924. Sept. 15. Vol. 4. No. 9. p. 239.]

The author found 6 cases of balantidium enteritis in Formosa. He believes that more cases could be discovered if more bacteriological examinations were undertaken.

P. H. M–B.

Ziemann (Hans). **Zur medikamentösen Ruhrtherapie.**—*Deut. Med. Woch.* 1924. Sept. 5. Vol. 50. No. 36. pp. 1220–1221.

This paper appears to be an abridged clinical account of dysentery on text-book lines. The death-rate from bacillary dysentery amongst German troops, at the commencement of the war, is stated to have been 8 per cent. Ziemann himself has never seen a fatal case where the saline treatment has been properly carried out.

P. H. M–B.

Delanoë. **Au sujet des dysenteries à Trichomonas. (Réponse à MM. Dekester et Melnotte.)**—*Bull. Soc. Path. Exot.* 1924. July 9. Vol. 17. No. 7. pp. 557–558. [3 refs.]

Delanoë claims priority for pointing out the pathogenic import of *Trichomonas intestinalis* in Morocco.

P. H. M–B.

SPRUE.

JONES (I. Davenport). **Is Lymphatic Obstruction a Factor in Sprue?** [Correspondence.]—*Lancet.* 1924. Sept. 6. p. 525.

Two cases of spure were subjected to operation for suddenly developed appendicitis in Bombay. Opportunities such as these seldom occur. The ileum was seen to be attenuated, while distension and varicosity of the lacteals in the mesentery attached to the jejunum were very apparent. No evidence of intestinal ulceration was obtained. This condition, never having been previously observed in the author's considerable experience of abdominal surgery, may shed some light upon the etiology of sprue. Delay in the lymph flow probably takes place in the sclerosed lymph-glands in the mesentery. Lymphatic obstruction may be the predominant factor. It is conceivable that the continuous absorption of toxin from the intestinal mucosa will eventually produce sclerosis of the mesenteric glands, and so cause lymphatic obstruction. There is no other intestinal disease in the whole range of medicine in which such a toxic process must be continuously taking place as in sprue.

P. H. Manson-Bahr.

SMITH (Lawrence Weld). *Monilia psilosis* **Ashford in Severe Anaemia associated with the Sprue Syndrome.**—*Philippine Jl. Science.* 1924. Apr. Vol. 24. No. 4. pp. 447–465. With 1 plate. [17 refs.]

This paper records the isolation of a Monilia which culturally, serologically and morphologically corresponds with ASHFORD'S *Monilia psilosis.* A small group of cases was seen with great anaemia, resembling pernicious anaemia in severity and rapidity of course, but with few of the morphological changes in the blood commonly found in this condition. The red-cell count in typical advanced cases was under one million corpuscles, while the leucocyte count is correspondingly diminished to three thousand or less per cubic millimetre. The blood-platelets are absolutely decreased to from 100,000 to 150,000, as a general rule. The haemoglobin percentage is usually from 30 to 40, thus giving a high colour index. There are usually no nucleated red cells, nor any stippling or polychromatophilia. In other words, it is an idiopathic aplastic anaemia. The anaemia is associated with chronic pale, frothy stools, such as usually occur in sprue. Eight cases are quoted, in which *Monilia psilosis* was isolated from tongue scrapings and from the stools. Complement fixation with yeast antigen was usually positive. The methods employed in obtaining the Monilia were essentially those of ASHFORD. The identification of the Monilia by sugar reactions and the method of performing the complement-deviation test are described.

Neither in guineapigs nor rabbits has the author been able to reproduce the blood picture seen in human cases, but he thinks there is sufficient evidence to blame *Monilia psilosis* for the production of this severe anaemia.

P. H. M-B.

VAN DER SCHEER (A.). **Tropische spruw en pernicieuze anaemie.** [Tropical Sprue and Pernicious Anaemia.]—*Nederl. Tijdschr. v. Geneesk.* 1924. Sept. 20. Vol. 68. 2nd Half. No. 12. pp. 1468–1486.

In tropical sprue the microscopical constitution of the blood sometimes greatly resembles that of pernicious anaemia (of ADDISON). Both, moreover, have in common the affection of the buccal cavity, although this is more common in sprue; but, although affection of stomach and intestine occur in both, in pernicious anaemia achylia gastrica is the rule, in sprue intestinal trouble (white diarrhoea, disturbed fat-absorption). Instances are given showing, also in sprue, the symptoms of accelerated blood-destruction: increased quantities of bilirubin in the blood and sometimes of urobilin in the faeces. This destruction, however, never reaches a degree comparable to that observed in pernicious anaemia.

Pernicious anaemia is said to be caused by the accelerated blood-destruction together with a diseased condition of the haematopöietic organs (bone marrow). How is it in sprue? The author's hypothesis has been for a long time that sprue is due to the inability to neutralize toxic products formed in the intestine. This intestinal intoxication is favoured by rich nutrition; in Netherlands India the author observed a prevalence of the disease among the well-to-do classes, and a recrudescence of symptoms in convalescents after injudicious efforts to strengthen them by more food.

Physiological investigations have demonstrated that the haemolytic action of higher fatty acids (oleinicyacid, palmitinicyacid), which provoke haematological changes analogous to pernicious anaemia, can be prevented by small doses of calcium. The author's conception of the etiology of sprue is that great quantities of higher fatty acids are absorbed by the intestinal wall, whereas the absorption of calcium is inhibited by its being fixed by the acids still present in the intestine. The author points out that tetany, often found in patients suffering from sprue, is supposed to be caused by a disturbed calcium metabolism and that large doses of calcium, administered per rectum in cases of sprue, are known often to influence this disease favourably.

The presence of fatty acids in the intestine, the primary condition to produce sprue in this hypothesis, which in the case of alimentary anaemia is caused by a diet too rich in fat, is, in the case of sprue, provoked by an insufficient digestion of the fat, even if the latter is present in the food in normal or subnormal quantities. This disturbance of the digestion, by causing likewise abnormal fermentations and secondary diarrhoea, may provoke an insufficient absorption of the food as a whole, leading to conditions analogous to those produced when the food itself is deficient, so rendering the state of the patient still worse. Both factors, (1) disturbed digestion of fat with its consequences: free fatty acids admitted to the circulation and fixation of calcium before absorption; (2) the deficiency disease caused by the disturbance of general absorption, collaborate to produce the various symptoms of sprue and are both favourably influenced by a judicious diet.

N. H. Swellengrebel.

DURAN (Carlos). **Some Observations on "Sprue" in Costa Rica.**—*Amer. Jl. Trop. Med.* 1924. July. Vol. 4. No. 4. pp. 393–395.

Sprue is a common disease in Costa Rica; some cases are so characteristic that a mistake in diagnosis is impossible; in others chronic diarrhoea is the only symptom, but its cessation on a special dietary is almost diagnostic of the disease. A case is related in detail of a man over seventy years of age who, despite his very debilitated condition with oedema of the extremities, regained his health. ASHFORD's diet, which excludes cane-sugar and flour, was given.

P. H. M-B.

SCOTT (H. Harold). **Remarks on Recent Advances in the Treatment of Sprue:** *Calcium and Parathyroid.*—*Brit. Med. Jl.* 1924. Aug. 23. pp. 305–308. [4 refs.]

In continuation of previous contributions to this subject, Scott now records the course of sprue cases treated with calcium and parathyroid. The first case cited was treated on familiar lines; at the end of thirteen weeks he suffered from a relapse and at the end of twenty-three weeks was discharged from hospital still partaking of a very simple diet, including 5 pints of milk. Consideration of his symptoms, detailed in the résumé, shows that this was a mild case; there had been no cramp, the soreness of the tongue was but slight, and the loss in weight had amounted to only 20 lb. in two and a quarter years.

In the next 2 cases compared (iii and iv) the first was treated by the usual method of diet and rest; the second by the calcium lactate and parathyroid method. The increase in weight in this instance was 15 lb. The patient stayed in bed for a fortnight, and at the end of that time was taking milk, milk puddings, fish, chicken and green vegetables. In a month's time he was eating meat (mutton). He returned to India in February 1924 (4 months after his home-coming), and has since remained well.

Two parallel cases of moderate severity are next compared. The first of these was in hospital thirteen weeks and, at the end of that period, was partaking of milk, 6 pints, 3 eggs, 2 sago puddings, each of 4 oz., pounded fish and liver soup. The calcium-treated case was in hospital four weeks, during which time he had increased 28 lbs. in weight. The ionic calcium content of his blood rose from 7 mgm. per cent. to 10·8 per cent. He was on a liberal diet of eggs, milk puddings and fish.

Case vi is inserted to illustrate that the disturbance of parathyroid in sprue is functional only, and that when once it has cleared up, there is apparently no necessity to continue treatment. An elderly patient, who had had the disease on and off for at least 14 years, put on 31 lbs. in weight, left hospital, well, in 7 weeks, and when seen, after the lapse of one year, had not required to take any more calcium or parathyroid, nor had any return of symptoms.

Case vii is cited as indicating that calcium in the form of *pulvis Bataviae Co*, though masking the symptoms, does not stabilize the improvement, in the absence of parathyroid. Case viii was a lady, who had suffered from marked sprue symptoms in China, with very marked attendant anaemia (1,000,000 red cells per cmm.). On calcium lactate and parathyroid she was soon permitted underdone beef,

mutton chops, etc. On arrival in England she was found to be in normal health with no symptoms of sprue. The case is cited as showing that with the return of the ionic calcium to normal, ordinary diet can be resumed in a shorter time. As a rule, it has been found that the fuller diet provides all the calcium needed, so that this element may be omitted, but that the parathyroid, as regulator, must be continued for another week or so. Two more cases (ix and x) are quoted in order to demonstrate the tardiness of improvement when parathyroid is exhibited in half the customary quantities.

The paper concludes with an account of successful results which are being obtained in the endemic foci of the disease, together with a recital of two cases in which death ensued with symptoms of pernicious anaemia. In these cases the parathyroid treatment was commenced only in the last few weeks of life.

P. H. M-B.

COATES (Vincent). **Treatment of Sprue by Calcium and Parathyroid.** [Correspondence.]—*Brit. Med. Jl.* 1924. Oct. 4. p. 623.

This is a short résumé of two sprue cases, both from India, treated in Bath, on the lines laid down by H. H. SCOTT. The first was in a young man of 22, the second a lady of 45. In both cases, in addition to the calcium lactate and parathyroid treatment, the dietary was carefully regulated. Both have done well and no relapse has been noted. But a short period has elapsed since cessation of treatment—March 5th and June 14th, 1924.

P. H. M-B.

MALARIA.

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE. Trans. Fifth Biennial Congress, Singapore, 1923. pp. 15–127. III. **Malaria.** [WATSON (M.), WELLINGTON (A. R.), HOWARD (S. C.), STOOKES (V. A.), WALCH (E. W.), KOIDZUMI (M.), CHRISTOPHERS (S. R.) & KUNO (Y.).] **Malaria and Insanity,** pp. 128–147 [van LOON (F. H.) & KIRSCHNER (L.) & SAMUELS (W. F.)].

Opening Address on Malaria. [WATSON (Malcolm).] pp. 15–20. With 1 chart.

The Opening Address on malaria at the Fifth Biennial Congress of the Far Eastern Association of Tropical Medicine held at Singapore in 1923 was by Malcolm Watson. It is a striking illustration of the fact that it is to those whose knowledge of any scientific subject is the deepest that there comes the realization that they are but on the fringe of the matter. We read :—

"We have hardly begun the great campaign against malaria yet. . . . In the past 25 years we have been scouting rather than fighting. . . . Different places require different methods of attack. . . . A method successful in one place may aggravate the disease in another. . . . We do not know why one species of Anopheles is a carrier of malaria, and another, hardly to be distinguished from it, is not. We do not know why one species lives in one breeding-place and another species in another. We do not know why one ricefield contains one group of Anopheles and another contains another group."

It is indeed well that one of Watson's standing should have yet another stab at the bubble of self-satisfaction which glistens so beautifully in so much of the work of medical zoology. Proof of Watson's contentions are found throughout the other papers.

The History of Malaria at Gemas. [WELLINGTON (A. R.).] pp. 21–29.

Wellington showed how in Gemas the opening up of the jungle undergrowth allowed the breeding of the pestilent *A. maculatus* with increase of malaria, malaria and its shade-hating carrier disappearing as the undergrowth crept back into its own.

Malaria Control on Rubber Estates in the F.M.S. [HOWARD (S.C.).] pp. 30–36.

Howard envisages a central bureau of malaria control for rubber estates which would deal with site selection, drainage, oiling, and the pruning of the bukar which grows among the rubber, so that it will neither become too tall and favour the growth of mouldy rot, nor be cut too short to provide the shade which *A. maculatus* cannot breed in.

Some Remarks on Malarial Epidemics caused by *M. Sinensis* (*A. Hyrcanus*). [WALCH (E. W.).] pp. 46–72. With 6 figs. [14 refs.]

Walch's paper has already been considered (this *Bulletin*, Vol. 21, p. 607). Of further interest is the good effect of quinine, given daily for several months, to certain communities; neighbouring communities equally affected by drainage schemes, having none.

The Measurement of the Enlarged Spleen. [CHRISTOPHERS (S. R.).] pp. 102–112. With 3 figs.

Christophers' paper on measurement of the enlarged spleen has in substance been fully considered (this *Bulletin*, vol. 21, p. 597). For the present purpose one point may be recalled. It showed that while the position of the umbilicus relative to the costal margin varied, this was because of the varying position of the costal margin. The umbilicus was probably not more variable than any other abdominal feature.

On an Index Line for the Determination of the Spleen Rate. [KUNO (Yas).] pp. 113–126. With 2 figs.

Kuno suggested as a base line for the measurement of the exposed portion of an enlarged spleen one reaching from the upper part of the inner edge of one clavicle to the opposite anterior superior iliac spine. He worked it out as being fairly constant, provided the body were not bent forwards, and suggested that one-tenth of its length might be taken as the basis for comparison with the extent of the exposed spleen. In practical facility it can hardly approach Christophers' suggested measurement from navel to the tip of the spleen, as mapped out along the normal route which the apex takes as the spleen enlarges.

Other papers are "Notes on the Control of Malaria in Sarawak," by V. A. STOOKES (pp. 38–45); "Observations on Habits of the Anophelines in Formosa" and "The Anopheline Mosquitoes of Formosa," by M. KOIDZUMI (pp. 94–95, 96–101); "Treatment of Dementia Paralytica by Malaria Inoculation in the Tropics," by F. H. VAN LOON and L. KIRSCHNER (pp. 128–140) [see below, p. 54]; and "Malaria and Mental Diseases," by W. F. SAMUELS.

Clayton Lane.

GILL (C. A.). **Malaria in the Punjab. The Epidemic Forecast for the Year 1923.**—*Indian Jl. Med. Res.* 1924. July. Vol. 12. No. 1. pp. 185–193. With 1 map. [2 refs.]

The third annual malaria forecast for the Punjab is compared with the actuality. In certain districts the forecast proved incorrect. The reasons are considered. It is concluded:—

"It is proper to adopt a critical attitude towards predictions which claim to be based upon scientific principles regarding the occurrence of epidemics of disease, but in view of the degree of accuracy attained by three successive forecasts and of the independent testimony afforded on the present occasion of the facility with which an accurate forecast of epidemic malaria can be prepared, it is permissible to assume that the hypothesis upon which the method of forecasting is based is something more substantial than a mere epidemiological speculation."

C. L.

WATSON (Malcolm). **Remarks on Malaria.**—*Proc. Assam Branch Brit. Med. Assoc. Ann. Meeting, Jorhaut, 16th & 17th February, 1924.* pp. 32–34.

The question of tolerance is strikingly illustrated by Malcolm Watson's statement that children so seriously infected as are those on Assam tea gardens and who yet look healthy, would in Malay look

ill. The difference is attributed to Malaya labourers coming thither without, most of them, having suffered previously from malaria; whereas in Assam, which recruits one tenth only of its labour yearly, many children have been born in the garden, tolerance being, moreover, perhaps inherited.

C. L.

HENDRIKS (J. A.). **Uit de Malaria-epidemiologie.** [Malaria Epidemiology.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1924. Vol. 64. No. 3. pp. 353–402. With 3 charts.

This long article contains much, mostly statistical, information on malarial endemics and epidemics in Sumatra (Tapanoeli and Atchin). In Tapanoeli *A. ludlowi*, breeding in fishponds, is known to be a dangerous carrier, but the author incriminates also *A. aconitus*.

He had an opportunity of studying the time of incubation in soldiers, who stayed two nights in a malarious village; in subtertian, tertian and quartan fever it varied from 5 to 29 days (average 15, 18 and 19 days).

For the different types of endemics (chronic, seasonal, acute exacerbating) and epidemics (incidental in non-malarial people, permanently or temporarily settling in endemic regions, or real, caused by import of malaria carriers or (and) transmitting mosquitoes in a non-malarious country) the author outlines the sanitary measures to be taken. Much stress is laid upon quininization, which is most promising when carried out at the schools. Quinine is recommended in rather large doses (1 gramme twice a day for adults); the results of this method compare favourably with administration of the same quantity in smaller single doses. For prophylactic use quinine should be given 1 gramme every night for a fortnight after possible infection.

W. J. Bais.

CILENTO (R. W.). **Malaria in Australia.**—*Med. Jl. Australia.* 1924. May 17. 11th Year. Vol. 1. No. 20. (Supplement.) pp. 315–317.

This paper supplements that of MAPLESTONE (this *Bulletin*, Vol. 20, p. 961), whose information is held to have become out of date. It deals with local malarial distribution throughout Australia. Examination of 159 aboriginals and 54 half-castes at Port Darwin showed spleen rates of 22·6 and 31·5 respectively. *Anopheles* (*Nyssorhynchus*) *annulipes* and *A.* (*Myzorhynchus*) *bancrofti* are generally hypothecated as probable vectors, the former being common where malaria is prevalent. No proof on the matter exists.

C. L.

CILENTO (R. W.). **Malaria, with Especial Reference to Australia and its Dependencies.**—*Commonwealth of Australia Dept. of Health Service Publication* (*Tropical Division*) *No. 3.* 141 pp. With 35 figs. [32 refs.]

"A comprehensive summary of modern knowledge of malaria, orientated to the particular conditions and needs of Australia, and of those tropical Territories for whose welfare Australia is ultimately responsible." It is well written and well illustrated.

C. L.

i. BIJLMER (H. J. T.). **De Malaria. Met eenige aanvullende opmerkingen van H. de Rook, evenals eerstgenoemde officier van gezondheid bij de expeditie.** [From the Medical Reports of the Scientific Central New Guinea Expedition 1920–1921.]—*Geneesk. Tijdschr. Nederl.-Indië.* 1924. Vol. 64. No. 4. pp. 600–631. With 1 fig. & 1 graph.

ii. DE ROOK (H.). **Specieel Anophelinen-onderzoek.** [Special Anopheline Research.] [From the Medical Reports of the Scientific Central New Guinea Expedition, 1920–1921.]—*Ibid.* pp. 642–656. With 1 folding plate.

i. The expedition intended exploration of the central highland of New Guinea, from the north along the Mamberaro river. The country was known as very malarious. The population of the base bivouac was about 400 (Europeans, native soldiers, native prisoners, Dayak rowers). Within a fortnight after arrival malaria cases occurred and within 6 months 96 per cent. of a group of 79 native soldiers were infected. In new batches of soldiers the epidemic ran a similar course. There were cases of tertian and subtertian fever; the severity of later attacks in the same individual diminished as a rule. Quinine prophylaxis, systematically carried out from the beginning (2 days a week 0·8 gm., later 0·4 gm. every day, afterwards 2 days a week 1 gm.), was not a success in preventing malarial infection; generally, however, the character of the attacks was benign, and this was ascribed to the quinine prophylaxis. New infections apparently played an important part.

Towards the end of the first, and in the beginning of the second, year of the expedition there were 11 cases of blackwater fever. These patients, at outposts out of reach of medical officers, had neglected quinine prophylaxis. Bijlmer thinks that blackwater fever can be prevented by methodical quinine treatment and early evacuation of persistent malaria cases.

At the bivouacs in the central parts of the country mosquitoes were innumerable. At the base the number of mosquitoes (*A. punctulatus*) appeared to be few, but increased after temporary inundations, when larvae were found in great numbers in small puddles, hoofprints, etc. Drainage of the site was practised as far as possible.

ii. A minute description is given of larva and imago of the two species found by the author. Both, *A. punctulatus* (Dönitz) and *A. punctulatus* var. *moluccensis* (Swellengrebel), are malaria transmitting species. The natural infection rate of the first was 1½–5 per cent. The two species mentioned must be distinguished from *A. tessellatus* (Theobald), which has been erroneously considered as *A. punctulatus* in the western part of the Malay Archipelago.

W. J. Bais.

LI (K. H.). **Malaria among Chinese University Students.**—*China Med. Jl.* 1924. Sept. Vol. 38. No. 9. pp. 737–742. [3 refs.]

Of 460 students of the Soochow University 395 claimed to be, or to have been, malarious; 124 had clinical symptoms and were found to harbour subtertian parasites in 20, tertian in 10, quartan in 6, and undifferentiated forms in 25 cases. A students' strike confused conclusions, but malaria is held to be the most potent cause of loss of class attendance. Large mononuclears averaged 17·75 per cent.

C. L.

SERGENT (Edm. & Et.), PARROT (L.), FOLEY (H.), SÉNÉVET (G.) & CATANEI (A.). **Études épidémiologiques et prophylactiques du paludisme. 20e, 21e et 22e campagnes en Algérie en 1921, 1922 et 1923.**—*Ann. Inst. Pasteur.* 1924. Sept. Vol. 38. No. 9. pp. 775–786. [1 ref.]

It is interesting that the detailed association of rainfall with malaria which GILL has shown to hold so strikingly for the Punjab that from the precipitation in July and August the autumn malaria incidence has been forecasted with considerable accuracy, is mentioned in this paper as established for the spring rainfall in Algeria. Yet drought has produced malaria by driving malarial famine-striken people into less malarial parts, as of course has improper irrigation. In Algeria no protection for man by animal houses is experienced, the Anopheles apparently liking the w.c. as much as the adjacent animal house. In spring the splenic index of 4,531 persons was 35·7, the parasite index in 3,876 persons was 10·7, the gamete index in 3,866 was 2·6. Of 100 children, 20 harboured *Plasmodium falciparum*, 13 *P. vivax*, 17 *P. malariae*, and in 20 the form was undetermined. Prophylactic quinine in daily dose of 0·4 gm., the salt used last year being the sulphate, taken for 5 months in the year in the hills, for 7 months on the coast, and all the year round at Halia, was issued to 3,500 persons in 1921, 4,000 in 1922, and 10,000 in 1923. Small antilarval measures, mosquito gauze, and 4 sets of tracts complete the hygienic measures. It is held that grave attacks have been prevented, cachexia lessened and mortality considerably diminished.

C. L.

RAULT (M.). **Quelques faits relatifs au paludisme.**—*Bull. Soc. Path. Exot.* 1924. June 11. Vol. 17. No. 6. pp. 503–507. With 2 charts in text.

At Tiaroye in French West Africa the spleen rate varies from 25 to 50 per cent. In the day time 82 per cent. of mosquitoes caught in a house were Anopheles and 72 per cent. of these were females. At 7 p.m. there were no Anopheles, but by 11.30 p.m. they had reached 4 per cent. of the total, and 99 per cent. of them were females.

C. L.

PALESTINE. **Proceedings of the Ninth Meeting of the Antimalarial Advisory Commission, 22nd May 1924.** [HERON (G. W.), Director of Health, President.] [MS. received from Dept. of Health, Jerusalem.]

BRIERCLIFFE noted that, while the low malarial incidence of 1923 was attributable largely to a low rainfall, in some parts it was chiefly due to antimalarial measures. For example, in 1921 larvae were found once in 1,400 inspections, in 1922 once in 2,000 and in 1923 once in 6,600, while at the same time additional wells and cisterns are still being discovered and registered. Of the £31,000 estimated to have been spent on antimalarial measures, contributions from abroad account for a third, Government expenditure rather more than and municipal expenditure rather less than a tenth, while nearly half was spent by private persons. The British Garrison comprised 1,500 persons, including 350 gendarmes, and showed 30 cases of primary malaria.

TYRRELL observed that very weak cresol, 1 in 10,000,000 parts in running water, killed newly hatched mosquito larvae in 12 hours, although KLIGLER considered that the greatest dilution producing effective larval control was 1 in 10,000, TYRRELL pointing out that even such a dilution was tasteless.

Regarding length of flight, KLIGLER remarked that the catching, staining and releasing of mosquitoes involves risk of injury which must necessarily affect their powers of long distance flight. He believes that ascertaining the presence of a given species of Anopheles at different distances from its breeding places, provided they are all known, gives a more satisfactory basis. Observations are recorded indicating that the prevailing house-visiting mosquitoes, *A. sergenti*, *A. superpictus* and *A. multicolor*, usually fly a distance of 2 kms. At Ayelet, set on a hill, *A. elutus* was troublesome, though no breeding place nearer than 4½ to 5 kms. could be discovered. At Ain Hai, similarly placed, the range of flight is similarly put as 5 to 6 kms. WENYON's similar Macedonian observations are noted.

SCHAPIRO considers spleen and parasite rates. In discussion the necessity of spleen examinations being carried out by one observer was emphasized and the value of percussion as a routine criticized; yet, after all, a main value of such observations lies in comparisons with similar ones in other years and in other countries, and if the ordinary technique be varied, and if it does not adequately eliminate individual tendencies, their value is little or none. Jews are more amenable to antimalarial measures than Arabs, and have correspondingly benefited by them.

C. L.

DE LAVERGNE (V.). **Comité d'hygiène de la Société des Nations et paludisme.**—*Rev. d'Hygiène.* 1924. June. Vol. 46. No. 6. pp. 541–560. With 1 graph.

The Malaria Commission of the Public Health Committee of the League of Nations has addressed a questionnaire to all nations concerned; the reply received from Italy is here summarized. A multitude of laws, regulations and enactments are in existence but are not generally enforced. The preventive measures comprise, (1) compulsory notification; (2) the regulation of surface water; (3) certain adaptations of dwellings and of dwellers; and (4) the State issue of quinine. (1) It is lamented by the writer that compulsory notification is, like many of the other excellent proposals, largely not enforced. Presumably it proves as unsatisfactory in Italy as KORTEWEG is sure it will prove in Holland. (2) This includes the Italian principle of bonification, which may be used to compel an owner to improve, or lose, his land. (3) Screening and even the making of roads are included under this head. (4) To avoid adulteration and profiteering the State undertakes this paternal duty, but makes the contractor or factory owner buy and distribute it, under penalty of paying compensation to employees in case of death. ASCOLI is quoted as advising 1 to 1·5 gm. of quinine daily in treatment, less being useless and more only required in grave cases; as stating that it must be so given as to be present in the blood when sporulation occurs; and most amazingly as claiming that relapse may be caused by the parthenogensis of microgametes which, yet more unexpectedly, produce sexual cycles. There is noted the unhappy dilemma of the army pensioner faced with

malaria and pension, or cure and no pension; and the remarkable results claimed for the railways by antimalarial measures. Many compulsory measures are, in fact, carried out by persuasion through voluntary societies, such as the Red Cross, with State aid. The net result has been a fall in the deaths caused by malaria, from 70 per 100,000 in 1887 to 7 per 100,000 in 1914.

C. L.

GRASSI (B.). **Reviviscenza temporanea della malaria in Toscana.**—*Ann. d' Igiene.* 1924. Feb. Vol. 34. No. 2. pp. 81–91.

The condition defined as paludism and anopheles without malaria existed in this part of Tuscany up to 1918. After that, spread was definite, so that in January 1922 there were 117 cases recorded. The experiences of the people led to their ready acceptance of quinine prophylaxis and treatment in 1922 and 1923. The maximum incidence in the latter year was 44 cases in May, yet there were but 2 cases in November and none in December. It is advised that these antimalarial measures should be continued.

C. L.

CHRISTIE (Ethel M.). **An Account of the Malaria Work done in Buzuluk Ooyezd by the Society of Friends.**—*Jl. Trop. Med. & Hyg.* 1924. July 1. Vol. 27. No. 13. pp. 187–190. With 1 chart.

The general position and routine at this malaria clinic have been dealt with by MACKENZIE (this *Bulletin*, Vol. 21, p. 291). Although *Anopheles maculipennis*, identified by ALCOCK, was caught in houses in winter, Christie does not state, as MACKENZIE did, that they bred during the winter in waterbutts indoors. 91,000 persons treated, all after microscopic diagnosis, each with 15 gm. of quinine, with a relapse rate of between 5 and 10 per cent., is a proud record.

C. L.

SOUTHERN MEDICAL JOURNAL. 1924. Aug. Vol. 17. No. 8. pp. 573–608.—**Symposium on Malaria.**

WELCH notes the spectacular fall in malaria following the initiation of control work in Alabama, and the hope of its speedy extermination which followed. There now come the discouraging discovery that nothing of the kind has ensued, and the realization of the disconcerting magnitude of the subject and the courage and enthusiasm needful for the remaining work.

CARTER advises that impounded water in ponds with gently sloping sides should be held at as high a level as possible while *A. quadrimaculatus* is not ovipositing, thus killing land vegetation and collecting floatage along the edges of the water. Just prior to the first flight of mosquitoes the pond's surface should be lowered as far as possible, thus stranding the floatage and larvae, killing the latter and leaving a clean water's edge open for the attentions of gambusia. Thereafter hold every rise of water during the summer as long as possible (but less than two weeks, the ovum to imago period), and then let it run down to clean edges.

FRICKS writing on instances of abundant anopheles, sufficient human carriers, and no malarial problem, urges investigation of the unknown factors.

BARBER & MAYNE show that in the Southern United States benign tertian malaria reaches its maximum in spring and subtertian in late summer; and that negroes show, all the year round, a larger percentage of the latter than do whites.

BARBER considers the spleen index in malaria in Lee County, Georgia. Of 338 negro children having no palpable spleen, 11·2 per cent. had plasmodia in the cutaneous blood, of 51 where it was felt on inspiration 35·3 per cent., of 126 where it was just palpable 34·1 per cent., of 29 where it came down 1 finger's breadth 55·1, of 3 where it came down 2 fingers' 60, of 23 with 3 fingers' breadths exposed 69·5. "The spleen index appears to afford a very sensitive, accurate and easily applied method of detecting present or recently acquired malaria." The experience of Eastern workers is—had to be—confirmed, but their methods are held to be too coarse to detect the finer degrees of enlargement to be found in such regions as the Southern United States. CHRISTOPHERS' work (this *Bulletin*, Vol. 21, p. 597) has evidently not reached America.

KING showed that while in Louisiana a large mosquito population was required to produce a high malaria rate in man, yet an increase in the mosquito population was coincident with a fall in their percentage of infection. For instance, with two to five hundred mosquitoes per house 6 to 8 per cent. contained human blood; with 1,500, 3 per cent. or less.

O'CONNOR instanced an animal house placed between breeding pond and human residence, containing calves and acting as an interceptor of *A. quadrimaculatus*; and pointed out the extent to which these harbour in hollow trees.

LE PRINCE showed that major drainage operations do not necessarily reduce the prevalence of malaria.

C. L.

MAXCY (Kenneth F.). **Epidemiological Principles affecting the Distribution of Malaria in Southern United States.**—*Public Health Rep.* 1924. May 16. Vol. 39. No. 20. pp. 1113–1127. [20 refs.]

Malarial foci are *endemic* when conditions favourable for transmission are present continuously year after year; *potential* where they may be realized at any time, although one or other factor is, for the time being, absent; *epidemic* when some new condition has facilitated transmission in an endemic, or made it possible in a potential, focus. The disease is not ubiquitous in the Southern States, and efforts to control it should be directed towards endemic foci.

C. L.

BARBER (M. A.). **Malaria in the Seventh District of Louisiana.**—*New Orleans Med. & Surg. Jl.* 1924. July. Vol. 77. No. 1. pp. 16–19.

The ground is that covered by MAXCY (this *Bulletin*, Vol. 20, p. 963). The parasite rate, based on a single examination of a thick film, was

3·2 (in negro children 4, and in white children 1·5). Negroes are less incommoded, less likely to undergo treatment, and so a greater danger to the community than whites. It is pointed out that with sufficient anopheline and human carriers, a susceptible population, and suitable meteorological conditions, there yet occur portions of local rice-growing regions where the malaria rate is low and apparently falling. The standard of living is emphasized as an antimalarial factor, a useful reminder of a phenomenon of which modern Algeria is perhaps one of the most striking examples.

C. L.

DOWLING (Oscar). **Malarial Infection in the Lower Mississippi Valley.**—*Amer. Jl. Trop. Med.* 1924. Sept. Vol. 4. No. 5. pp. 461–468.

The facts disclosed are mainly those collected by MAXCY (this *Bulletin*, Vol. 20, p. 963). "Theoretically, it is extremely easy to prevent the spread of malaria and the eradication of the breeding places of the Anopheles; practically it is very difficult." There is noted the growing realization by railway companies of the commercial possibilities of eradicating malaria, as exemplified, to take a single instance, in the damage to expensive machinery by incompetent substitutes for skilled men sick of malaria. For the population generally, education and willingness for effort must precede effective antimalarial measures.

C. L.

BONNE (C.). **Malaria in Suriname.**—*Nederl. Tijdschr. v. Geneesk.* 1924. Aug. 2. Vol. 68. 2nd Half. No. 5. pp. 616–637. With 1 fig. [4 refs.]

Dutch Guiana consists typically of a flat marshy coastal strip, a sandy savanna-land, and a hilly interior more malarial than the rest of the country and containing the mines. All three species of malaria parasites are present and ten known species of Anopheles. In the hills subtertian malaria is the commonest form, and the main insect host is *A. argyritarsis.* This mosquito is not found on the coast, where *A. tarsimaculatus* is implicated. It is estimated that of bush-nigger children 54 and of adults 24 per cent. are infected. Black miners have 56 per cent. infected, a condition suggesting tolerance among those living in the bush. *A. tarsimaculatus* differs anatomically on the coast and at Moengo in that the second hind tarsal is on the coast half white, and at Moengo three quarters to four-fifths white. In July the anopheline population is at its highest. A month's treatment of half a gramme of quinine was undertaken for Javanese with enlarged spleens. All kinds of malaria were far less prevalent in 1922 than in 1921. Ten cases of blackwater fever occurred in these years.

C. L.

MEDINA JIMÉNEZ (Rafael). **Nuevos datos demostrativos de la gravedad de la endemia malarica en el interior de Venezuela.** [Grave Endemic Malaria in Venezuela.]—*Rev. Med. y Cirug.* Caracas. 1924. Jan. 31. Year 7. Month 3. No. 70. pp. 74–79. [1 ref.]

The town of Camatagua, situated on the Guarico where it leaves the hills for the plains, had formerly a population of six or seven thousand. It now possesses one of 800, more or less, who suffer from malaria, ankylostomiasis, dysentery, buboes and bilious haemoglobinuric fever.

The spleen index is 73, while those who show either enlarged spleen, malaria parasites, mononucleosis, or pigmented leucocytes number 94·8 per cent. of the whole.

C. L.

MARTINI (E.). **Ueber Malariaindizes.**—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Oct. Vol. 28. No. 10. pp. 419–428. With 1 fig.

In 131 children examined the spleen was enlarged in 12, and parasites present in 65, six having both palpable spleens and parasites in the cutaneous blood. The absolute infection was then 71 in 131, or 54 per cent. Martini apparently holds that the probable total index in such a case should be worked out thus :—

$$\frac{\text{Number of enlarged spleens} \times \text{Number of positive bloods} \times 100}{\text{Number of enlarged spleens with positive blood} \times \text{Total}}$$

in this case $\frac{12 \times 65 \times 100}{6 \times 131} = 99.$

C. L.

GILKS (J. L.). **Some Notes on Malaria.**—*Kenya Med. Jl.* 1924. June. Vol. 1. No. 3. pp. 66–74. With 8 charts.

In Kenya subtertian malaria is the commonest and quartan the rarest form. The proportion of tertian to subtertian malaria was from 1907 to 1914, 1 to 9·9 ; from 1915 to 1918, 1 to 2·4 ; from 1919 to 1923, 1 to 5·7. The alteration during war time is attributed to a presumed importation of benign tertian carriers with the Indian Expeditionary Force.

C. L.

SEYFARTH (C.). **Der Malariatod.** [Death in Malaria.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Aug. Vol. 28. No. 7. pp. 289–294. [8 refs.]

In acute malaria a wide experience, personal and of the literature, places the cause of death in seven categories :—(1) Septicaemic, a massing of infected erythrocytes in blood-vessels of all vital organs, 30 per cent. (2) Cerebral, 50 per cent. (3) Cardiac, 14 per cent. (4) Renal, 1 per cent. (5) Suprarenal. (6) Pancreatic. (7) Rupture of the spleen. Chronic malaria is a disease of complications, causing death by bronchopneumonia, dysentery and septicaemia, quite apart from its combinations with typhus, typhoid, influenza, tuberculosis, ankylostomiasis and kala azar.

C. L.

BUSINCO (A.) & FOLTZ (P.). **Contributo anatomo-patologico alla patogenesi delle epato-splenomegalie malariche (con particolare riguardo al contegno delle "Gitterfasern").**—*Policlinico.* Sez. Med. 1924. Sept. 1. Vol. 31. No. 9. pp. 474–496. With 7 text figs. [28 refs.]

Trellis fibres result from the irritation of malarial infection. In the liver they are associated with hyperplasia of the lobule. They are apt to take the form of circumcapillary fibres radiating, or encircling the vessels, and, after a certain number of attacks, likely to form a network. In the spleen the change takes place in all parts. It is best shown by impregnation with silver.

C. L.

STEPHENS (J. W. W.) & GORDON (R. M.). **The Crescent and the Red Cell.**—*Ann. Trop. Med. & Parasit.* 1924. Aug. 2. Vol. 18. No. 2. pp. 207–210. With 4 plates. [4 refs.]

That, as shown by LAWSON (this *Bulletin*, Vol. 15, p. 419, etc.), there is not one stereotyped appearance of crescent and red cell is emphasized by a series of 48 drawings.

"We may state at once that we consider that the specimens show clearly that in many cases the poles of the crescent project beyond the red cell, but we have been unable to determine the relationship of the body of the crescent to the red cell, although the general impression left on our minds after examining a very large number of crescents during the last three months is that the body also is extracellular."

C. L.

MAGGIORE (Salvatore). **Nefropatie malariche nell' infanzia.**—*Pediatria.* 1924. Nov. 1. Vol. 32. No. 21. pp. 1257–1264. [5 refs.]

Work undertaken in connexion with the University of Palermo showed that of 130 children, 68 having subtertian, 37 tertian and 25 quartan malaria, 23·8 per cent. had albuminuria, casts, haematuria or pyuria. Of these albumin was the commonest; haematuria was associated with haemophilia. Very young children are said to get an acute interstitial malarial nephritis, in general curable by quinine. No chronic or relapsing cases were studied. Excessive parasitism and excessive stagnation of parasites in the kidneys are held to occur at that age, and to explain the matter.

C. L.

SINTON (J. A.) & LAL (R. B.). **The Incidence of Albuminuria in Malaria, with a Note on its Occurrence during Quinine and Alkali Treatment.**—*Indian Jl. Med. Res.* 1924. July. Vol. 12. No. 1. pp. 47–63. With 1 chart. [37 refs.].

A valuable summary of the recorded occurrence of albuminuria in unclassified malaria shows that it varies from 0 in CHAMBERLAIN'S findings to 97·5 per cent. in those of MARCHOUX. The suggested causes of this variation are (*a*) a selected population—such as that of a hospital to which only grave cases would be admitted, or a jail containing men only; (*b*) the dosage and mode of administration of quinine—since the drug, especially in large doses and with intramuscular injection, seems capable of causing albuminuria; (*c*) the number of days on which the urine is examined—a detail which does in fact make a considerable difference to the percentage revealed; (*d*) the diet—since an alkaline reaction of the urine has been found to protect against experimental nephritis; (*e*) climate—which induces sweating and scanty and concentrated urine; (*f*) the normal incidence of albuminuria—which does not seem to have been determined in these cases. It is pointed out that all these factors require more attention than they have hitherto received. The effect of Sinton's quinine and alkali mixture (this *Bulletin*, Vol. 20. pp. 300 & 971) in producing albuminuria was tested in 236 cases, 231 controls receiving quinine without alkali. There were 33 cases of albuminuria in those receiving alkali, and 31 in those who did not.

C. L.

GORDON (R. M.). **The Value of Urinary Examinations in the Diagnosis of Malaria.**—*Ann. Trop. Med. & Parasit.* 1924. Oct. 31. Vol. 18. No. 3. pp. 351–362. [15 refs.]

In this considerable series of cases there are tabulated almost daily variations in the temperature, malaria parasites, urobilinogen, urobilin, albumin, casts, indican, bile pigments, and urea of over 3 per cent. The urinary reagents and tests are described in detail. No differences in the urinary constituents were detected for the different species of malaria parasites. The most detailed tests concerned three cases of general paralysis infected in England with *P. vivax* by the deliberate bites of infected mosquitoes. Urobilin or urobilinogen appeared before, with, and after the parasites, and persisted for 1 to 5 days after the blood became negative. Albumin and casts appeared within 3 days of the first finding of parasites in the two cases in which they had formerly been absent; in the third, in which they were present before infection, the effect of quinine treatment was that casts disappeared before parasites, and albumin soon after. Urobilinogen, urobilin and indican frequently appeared in a febrile case of lymphadenoma used as a control. Taking into consideration normal persons, mixed hospital cases, cases of clinical and cases of microscopically established malaria, it is concluded that, regarding positive findings, no single test has proved diagnostically unassailable, all the phenomena occurring with considerable frequency even in normal persons; but a combination of urobilin and albumin is shown by the three inoculated cases to be strongly suggestive of malaria.

As regards negative evidence, absent urobilin indicates absent urobilinogen, but not *vice versa*, and suggests absence of malaria since urobilin is present in 87 per cent. of malaria cases. [It is surely very desirable that these tests should be repeated, not on these initial cases in which quinine has so recently been shown to exercise such rapid and complete disinfestation, but in those difficult cases in which, with no quinine taken and with careful blood examination made, parasites are not found in the peripheral blood, although their subsequent appearance under conditions reasonably excluding infection shows that parasites have been present throughout.]

C. L.

KORTEWEG (P. C.). **Malaria in het ontwerp van wet houdende voorzieningen tegen besmettelijke ziekten.** [Malaria in the Draft Law containing Provision against Infectious Diseases.]—*Nederl. Tijdschr. v. Geneesk.* 1924. Mar. 22. Year 68. 1st Half. No. 12. pp. 1322–1324.

The Secretary of the Malaria Commission of North Holland points out that no diseases are mentioned in the Draft; yet it appears from an explanatory memoir that malaria is to be included, in which case it will be obligatory on every physician to report within 24 hours every case which he suspects of being malarial. So convinced, indeed, is the Minister of the efficacy of this procedure that in explanatory instructions he quotes malaria as an instance of failure to check at the beginning an expensive epidemic. As long ago as 1901, it is pointed out by Korteweg, it was shown that malaria in Holland rarely had the classical form and that history here repeats herself, that the causes of the lighting up of Dutch malaria are unknown, that primary and relapse cases exist, and that if malaria be included in the Schedule, full wastepaper baskets may be looked forward to with confidence.

C. L.

SWELLENGREBEL (N. H.). **Le paludisme aux Pays-Bas.**—22 pp. With 6 charts.

Equally with KORTEWEG (see above) Swellengrebel considers valueless the compulsory notification of malaria in Holland. Much of the matter dealt with has already been considered in the reviews of the Annual Reports of the Malaria Commission of North Holland (Vol. 20, p. 962). Points needing special emphasis are the great excess of *A. maculipennis* in Holland compared to the numbers of anopheles to be found in the tropics coupled with the restriction of malaria centres. There have been caught three times as many anopheles in animal houses as in dwellings, but 52 per cent. of the last contained blood; and it is concluded that *A. maculipennis* is really zoophil in Holland, but that there are too many of them to feed comfortably on the available beasts, so many fall back on man. A vivid description of the hydraulic conditions obtaining in Holland is given.

C. L.

VICKERS (V. C. W.). **Chronic or Suppressed Malaria.**—*S. African Med. Rec.* 1924. Sept. 13. Vol. 22. No. 17. pp. 404–405.

It is admitted that in the conditions of debility and slackness described the proof that the cases are malarial is difficult in the extreme, but the reaction to quinine is held to be striking and to demand adequate anti-malarial screening and treatment of white men, the educative effect to lead on to the proper disinfestation of native cases.

C. L.

SEYFARTH (C.). **Malariaparasiten und Malariapigmentbefunde in der Leiche.** [Malaria Parasites and Pigment in the Dead Body.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Aug. Vol. 28. No. 8. pp. 351–358. [7 refs.]

These investigations lead to the conclusion that in the stagnant blood of a corpse, provided it be warm, development goes on to schizogony, but that, contrary to the opinion of GASKELL and MILLAR, the merozoits do not penetrate fresh corpuscles. Examinations of sections are held to show that in fever-free periods infected corpuscles lie within the capillary lumen, but against the capillary wall, of internal organs, uninfected corpuscles occupying the capillary axis. Degenerating forms lie within macrophages. Pigment lies free in the plasma, in leucocytes, in endothelial cells, never in parenchyma cells, It may be found two years after the last malarial attack.

C. L.

HOLM (Kurt). **Ueber einen Fall von Infektion mit Malaria tropica an der Leiche.** [Subtertian Malaria acquired from a Corpse.]—*Klin. Woch.* 1924. Sept. 2. Vol. 3. No. 36. pp. 1633–1634. [1 ref.]

The acquisition of subtertian malaria from a corpse is here suspected. B. had malaria held, clinically and microscopically, to be tertian, but apparently suspicion was raised by later developments, and on subsequent re-examination of the film a crescent was found by Professor HEGLER. B.'s blood was injected into H., a patient with general paralysis, who died after an unstated interval with unstated symptoms. Autopsy on H. was performed by J. on 13th February, at Hamburg, the interval after death being unstated. H.'s brain showed appearances

held indicative of subtertian malaria. While sewing up the body, J. pricked his finger. Fifteen days after the autopsy J. fell ill with rigors and fever, and nine days later every second or third erythrocyte contained one, two or three plasmodia identified as those of subtertian malaria. He still had a scab on the pricked finger. It is held that transference by a mosquito is impossible in winter in Hamburg, and that this is accordingly the first recorded instance of infection from a dead body.

C. L.

BEYERMAN (W.). **Chorea veroorzaakt door malariaintoxicatie.** [Chorea caused by Malaria.]—*Nederl. Tijdschr. v. Geneesk.* 1924. Oct. 18. Vol. 68. 2nd Half. No. 16. pp. 1987–1988.

A boy of 17, youngest of a family of 17, of whom 10 had died in childhood and three had suffered from chorea, developed in March in Holland choreiform movement coming on at 9 in the morning, lasting all day and night, and ending next morning when he fell into a deep sleep. The cycle was repeated every other day for four months. At that time he had fever, enlarged spleen and malarial parasites, presumably tertian, in the blood. Under quinine the malaria and choreic movements disappeared.

C. L.

DETRE (Ladislaus). **Der plötzliche Tod eines mit Neosalvarsan behandelten Malariakranken unter Addisonschen Symptomen.** [Sudden Death with Addisonian Symptoms of a Malaria Patient treated with Neosalvarsan.] —*Med. Klin.* 1924. July 20. Vol. 20. No. 29. pp. 1001–1002. [17 refs.]

A tertian malaria microscopically established, with fever reaching 40° C., diarrhoea, vomiting, jaundice, weakness, fainting, urobilinuria, optic neuritis. His blood was not freed from parasites by unstated doses of quinine. Neosalvarsan 0·15 gm. produced a rigor; 0·3 gm. a second rigor, collapse and death. At autopsy the adrenals were enlarged and congested.

C. L.

FREIRE (L. de Castro). **Malaria congénitale.**—*C. R. Soc. Biol.* 1924. June 27. Vol. 91. No. 22. pp. 219–220. [1 ref.]

That the disease was malaria rests upon physical signs and upon the presence in the blood of gametes which the writer felt he could not with certainty identify; that it was congenital on the statement that the mother, whose blood was not examined, had attacks clinically resembling malaria, that there are no anopheles in Lisbon, and that the child was born and lived there till seen by the writer when seven weeks old.

C. L.

JAGDSCHAN. **Ein Fall von angeborener malaria tropica.** [A Case of Congenital Malaria Tropica.]—*Russian Jl. Trop. Med.* Moscow. 1924. No. 3. In Russian. p. 15. With German summary.

Subtertian rings, scanty schizonts and crescents were obtained from both maternal and foetal sides of the placenta; and subtertian rings and crescents in smears of the child's blood taken immediately after birth, although, curiously enough, nothing was found in thick films. "Thus we have an undoubted case of congenital malaria."*

C. L.

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*From an abstract furnished by Mr. C. A. HOARE.

OLIVELLI (E.). **Contributo clinico alla questione della malaria congenita.**—*Pediatria.* 1924. Aug. 15. Vol. 32. No. 16. pp. 957–964. [22 refs.]

Olivelli points out that most so-called cases of congenital malaria are vitiated because parasites have been found at an interval after birth which does not exclude post-natal infection in malarious countries.

In this case the mother was infected in Sardinia, two years before the child's birth in Genoa. Genoa and its hinterland, the only places in which the child lived, are held free from malaria. A wet nurse was provided for the child from the age of five days, since a presumed attack of malaria in the mother deprived the child of nourishment at that age. Whether the infected child was still with the mother after this is not clear. Malarial parasites were first found in the child's blood five months after birth.

C. L.

WELCH (H. V.). **The Administration of Quinine during Pregnancy.**—*Kenya Med. Jl.* 1924. July. Vol. 1. No. 4. pp. 124–127. [4 refs.]

A woman three months pregnant took in error 50 grains of quinine; another pregnant woman took deliberately 100 grains on three successive days, with sharp haematuria; both went to term. On the other hand, Welch has notes of many abortions which he holds caused by malaria, and which he attributes tentatively to thrombosis of the cord. Malaria occurring in a child of three days old is mentioned, without details.

C. L.

ARNELL (H. M.). **Administration of Quinine during Pregnancy.** [Correspondence.]—*Kenya Med. Jl.* 1924. Sept. Vol. 1. No. 6. p. 189.

Having known of English working women regularly producing abortion about the third month by massive doses of quinine (although in others only toxic symptoms were produced), and quoting German authorities as stating that labour can be produced at term in 25 per cent. of cases by castor oil and three 10-gramme doses of quinine, Arnell instances two women at about eight months who were delivered of living children shortly after administration of quinine for malaria. The first was a mild case of fever, delivery occurring four days after beginning quinine acetyl salicylate, 5 grains three times daily; the second a severe one over ten days, with vomiting and epistaxis over three. She had two 20-grain injections of quinine bihydrochloride intravenously within four hours and miscarried two hours after the second one.

C. L.

BARBIER (P. L.). **Quelques réflexions au sujet du paludisme.—Palper de la rate.—Injections intra-musculaires de quinine.**—*Arch. Méd. et Pharm. Milit.* 1924. May. Vol. 80. No. 5. pp. 462–464.

The spleen is palpated with the patient lying half way between the dorsal and lateral decubitus. Injection is by quinine urethane 2 or 3 cc., and camphorated oil 2 cc. One needle is used for filling the syringe, and

another, whose point runs no risk of injury and whose outer surface is kept free from quinine solution, for injecting. Several hundred injections have been given thus without accident.

C. L.

MOCHKOVSKI (Ch.). **Les principes du traitement quinique du paludisme.** —*Bull. Soc. Path. Exot.* 1924. Apr. 9. Vol. 17. No. 4. pp. 310–322. With 2 figs. [10 refs.]

It is well known that the therapeutic effect of quinine depends, above all, on the moment of administration. Accordingly its action on parasites of different ages differs. Let it be admitted that it is the young merozoit which is susceptible. This is not present in the blood at one time only, though it is preponderatingly so at the time of fever. There must then be a constant arrival of quinine in order to kill the parasite at its susceptible time and in a form insuring certain and prompt action. If given by mouth, the dosage advised is 0·2 gm. every 3 hours, or 0·25 gm. every 4 hours ; if by hypodermic injection, which is evidently held not to produce necrosis, seven injections (dose unstated) at eight-hourly intervals ; if by intramuscular injections, 9 to 13 injections of 0·3 to 0·2 gm. every 6 or 4 hours ; if intravenously, as frequent injections as possible over 54 hours. These doses are held to maintain a sufficiently high quinine content in the blood throughout the asexual cycle. [For the premisses and conclusions of this quite logical paper no proof is offered, nor has the reviewer been able to find any in the literature (this *Bulletin*, Vol. 21, p. 853).]

C. L.

STRADOMSKY (Boris). [**Die Ergebnisse der Malariabehandlung nach verschiedenen Methoden.**]—*Süd-Ostischer Bote der Gesundheitsfürsorge.* 1923. No. 12. [Summarized in *Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Aug. Vol. 28. No. 8. pp. 358–360. By the writer.]

Intravenous quinine in tertian malaria gave 12 per cent. of relapses after 30 days, 82 per cent. after 300 days. After an autumn injection relapse followed on the average in 170, after a spring injection in 10·8 days. Oral quinine gave the same results, whether or not combined with neosalvarsan or methylene blue. Subtertian was the least, quartan the most stubborn. To stop the next attack of tertian fever due, 1·28 gm. of quinine sufficed intravenously, 2·32 gm. orally. Oral quinine is held effective by duration, not by size, of dosage, 1 or 2 gms. on 2 or 3 consecutive days, every 10 days, are advised. The usual urgent indications for intravenous quinine are noted, and the intramuscular route conceded if the skill to enter a vein be absent.

C. L.

COMENGE GERPE (Rafael). **Radioactividad de la quinina, su mecanismo antipalúdico.** [The Radio-Activity of Quinine, its Antimalarial Action.]—*Siglo Med.* 1924. Apr. 26 & May 3. Year 71. Vol. 73. Nos. 3672 & 3673. pp. 411–414. With 4 text figs. pp. 440–444. [15 refs.]

It is concluded that quinine is radio-active, and accordingly first excites and then destroys cellular activity, particularly its germinative power, a consideration permitting a glimpse of its mode of action upon plasmodia ; that it is much more radio-active when dehydrated ; and that its combination with radium and X-rays merits investigation.

C. L.

VALENTI (F.) & TOMASELLI (A.). **Lo stovarsolo nella cura della malaria. Nota preventiva.** [Stovarsol in the Treatment of Malaria, a Preliminary Note.]—*Policlinico.* Sez. Prat. 1924. Sept. 8. Vol. 31. No. 36. pp. 1159–1160.

Stovarsol, a proprietary drug, is the acid acetyl-amino-oxyphenyl of arsenic. It was given to two cases. The first was a heavy quartan infection which had resisted quinine. One lozenge was given on the first day, and two daily for another ten days. Parasites disappeared and the spleen, which has reached the umbilicus, shrank. The second case was infected with *P. vivax* and received the same treatment for five days, with rapid clearance of the blood and reduction of the spleen, which also had reached the umbilicus. The period of subsequent observation is unnoted.

C. L.

JONES (W. E.) & BUTLER (H. W.). **A Trial of *Vitex peduncularis* in Malaria.**—*Amer. Jl. Trop. Med.* 1924. July. Vol. 4. No. 4. pp. 387–391.

In two cases of tertian and two of subtertian malaria in which no other treatment was given fluid extract of leaves of *Vitex peduncularis* was administered, the blood being checked by microscopic examination twice daily. In no case did improvement follow, and in every instance quinine had to be administered—with rapid disappearance of symptoms and parasites. [*Cf.* this *Bulletin,* Vol. 21, p. 857.]

C. L.

LOMBARDI (Alfredo). **L'opoterapia cerebrale nella cura dei malarici epilettici.** [Cerebral Opotherapy in the Treatment of Epilepsy with Malaria.]—*Terapia.* 1924. Aug. Vol. 14. No. 62. pp. 239–242.

It is concluded from the experience of five cases that 1 cc. of brain extract, injected or taken by mouth, will permit of the administration of quinine to epileptics which, without it, would throw them into fits; and that its hypodermic injection permits the treatment of epilepsy in one with pre-existing gastro-intestinal disturbances which do not tolerate such drugs as bromide.

C. L.

YORKE (Warrington) & MACFIE (J. W. S.). **Observations on Malaria made during Treatment of General Paralysis.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1924. Mar. 20 & May 15. Vol. 18. Nos. 1 & 2. pp. 13–33. [33 refs.] (Discussion pp. 33–44.)

—— & ——. **Certain Observations on Malaria made during Treatment of General Paralysis.** [Abstract.]—*Lancet.* 1924. May 17. pp. 1017–1019.

The following abstract of this paper and discussion will, perhaps, suffice for those unfortunates who lack opportunity or inclination to read the original. Four cases were subcutaneously inoculated with quartan malaria; the induced fever was irregular, quotidian throughout or quartan becoming quotidian. Treatment was by the daily oral administration of 30 grs. of quinine for 2 months. Parasites took 4 to 7 days to disappear from the cutaneous blood, and no relapse occurred within the observation period of 3 to 5 months. Another case similarly inoculated and failing to show malaria was on the 39th day bitten by a mosquito having tertian malaria. *Plasmodium malariae* proclaimed its

presence by a rigor on the 44th day, and *P. vivax* on the 54th. In a sixth inoculation case with *P. malariae* the incubation period was 54 days, and two relapses occurred after treatment. Malignant tertian malaria was injected once with a fulminating fatal illness.

Tertian malaria has been carried over both by direct subcutaneous inoculation and by mosquitoes.

The direct inoculations comprise 70 cases in 23 direct passages initiated from a strain contracted in India, an old-standing relapse case previously treated with quinine on many occasions, and 28 other cases from differing strain. At the first inoculation 9 failed to acquire infection, apparent evidence of some natural immunity, although 4 out of 5 tested acquired malaria at a subsequent inoculation. Spontaneous cure occurred in 4 cases, 3 of which had successfully been inoculated with and cured of malaria 6 to 12 months earlier, presumed evidence of an acquired immunity. Treatment was in 61 cases by 30 grains of quinine sulphate in solution on each of 3 consecutive days, or 6 gms, in all. Over an observation period of 4 to 18 months, very rarely 2 to 4 months, one or 1·6 per cent. relapsed. Prophylactic quinine in daily dose of the sulphate for 14 or 7 days, with the inoculation in the middle of this period, showed no infection over periods between 5 weeks and 4 months.

Mosquito infections were as readily induced in 41 cases with *A. bifurcatus* as with *A. maculipennis*, both reared from larvae collected in Cheshire. Their infection in the same feeding batch was approximately constant, and related to the number of gametocytes found in the peripheral blood at the time of feeding. They displayed a sporozoit septicaemia (this *Bulletin*, Vol. 18, p. 103). Infection invariably followed feeding, no immunity being displayed. The first form to be found in the blood was nearly always the more numerous trophozoit, but the rarer gametocyte was never more than 2 or 3 days behind it. Treatment in 2 cases was by novarsenobillon, 0·6 to 0·9 gm. Both relapsed. Thirty-nine cases were treated with 6 gms. of quinine sulphate as above. Six died soon after treatment without parasites in the blood, two about a month after treatment without relapse. Of the 31 survivors 4 (13 per cent.) relapsed. Regarding prophylaxis, it is concluded that quinine given before the infective feed is useless, although in the table giving details there is no instance in which quinine was administered during this period only. Infection, however, occurred unless quinine sulphate in doses of 5 grains daily or more were taken for 10 to 14 days after the feed, the conclusion being that its action on sporozoits is negligible. The observations, the writers note, show the unicity hypothesis as untenable, seeing that neither in morphology, relation of sexual to non-sexual forms, incubation period nor clinical symptoms does the strain undergo, if a sufficiently long period be observed, any change. Full confirmation is obtained of the continental observations, that induced malaria is very susceptible to treatment. This susceptibility cannot be due (1) to an undue sensitiveness of an inoculation strain to quinine, since the mosquito cases reacted well, though not so well; (2) to the strain having been hitherto quinine-innocent, for the original donor had suffered much quinine with many relapses; (3) to previous syphilis, since two non-syphilitic cases of dementia praecox reacted equally readily to the 6 gm. treatment; (4) to the absence of a quinine-resisting strain due to reproduction in quinine-surviving individuals, since there is no evidence that quinine reaches all individuals and since the writers have found that in no

case did parasites persist in the cutaneous blood after it had been made certain that quinine reached the blood, as, for instance, after an injection; (5) to the particular line of treatment, since similar success has been obtained by others with other lines.

It is held to be at least a reasonable assumption that no form of quinine therapy ever destroys all malaria parasites in the human body, that cure results because quinine given to one whose blood contains many parasites destroys, directly or indirectly, a proportion of these, thus setting free soluble antigen which, inducing production of antibody, sterilizes the host. The evidence offered regarding the first proposition is that quinine is more efficacious when parasites are many than when they are few; regarding the second, that there is no constant relationship between the number of parasites injected and the length of the incubation period, that certain cases refused to become infected, that spontaneous cures resulted, and that similar cures result in infection with *Plasmodium relictum.* Resistance is accordingly to be looked upon as immune body resistance, not quinine resistance. In this connection JAMES suggested in discussion that the failure of parasites to develop is a result of under-nourishment in the host and not of immunity. [One might, perhaps, illustrate this suggestion by noting that fresh water is immune from mackerel, not because fresh water contains bodies inimical (or anti-) to them, but because it does not contain bodies essential for their existence.]

Regarding the mental effects of malarial infection, 23·8 per cent. were unchanged but alive, which would not otherwise have been the case for the majority; in 11·9 per cent. there was physical improvement; in 20·2 per cent. great physical and distinct mental improvement; in 27·4 per cent. physical and mental improvement justified discharge, a number returning to their old occupations. None suffering from general paralysis had previously been discharged from these hospitals.

JAMES, LOW and HANSCHELL stressed the point that the high temperatures of 105° or 106°, essential, probably through protein shock, for good mental effect, involved considerable risk and necessitated great care and watchfulness, the two last emphasizing evidence suggesting that quinine fails to act on sporozoits. Andrew BALFOUR urged the need of great assistance from the bio-chemist in elucidating the action of quinine, and suggested the investigation of antigens from cultured parasites as an aid to quinine.

C. L.

MACBRIDE (Henry J.) & TEMPLETON (W. L.). **The Treatment of General Paralysis of the Insane by Malaria.**—*Proc. Roy. Soc. Med.* (Section of Psychiatry). 1924. June. Vol. 17. No. 8. pp. 15–24. [15 refs.] (Discussion pp. 25–26.)

Malarial, apparently benign tertian, blood was injected, generally intravenously, into 18 cases, with a syringe lubricated with liquid paraffin to prevent clotting. Irregular fever began on the second or third day, became tertian a few days later, and in some instances became quotidian after 12 to 16 days. Usually 12 high fever reactions were permitted, a tertian rhythm being preferred as less prostrating than a quotidian. The writers are of opinion that the virulence tends to increase with each transmission, the maximum number of direct transmissions being in their cases ten, and they advise that the strain should be renewed at each opportunity. Three cases died during the

fever; in two, post-mortem examination was made and showed marked splenic enlargement with bile staining of the liver. Several cases refused to develop fever, all of them having previously suffered from natural malaria. The paper contains no suggestion that in any infected person search was made for parasites either during life or after death.

C. L.

GRANT (A. R.) & SILVERSTON (J. D.). **Malaria Therapy in General Paralysis: being Observations on Fifty Cases treated at the County Mental Hospital, Whittingham.**—*Jl. Mental Science.* 1924. Jan. Vol. 70. No. 228. pp. 81–89. [4 refs.]

These cases were all injected subcutaneously, mostly with 2 to 3 cc. of blood containing *P. vivax,* and one case, successfully, with blood which had been citrated and kept at body temperature for 5 hours. Of over 50 cases 2 failed to become infected at the first injection, but inoculation 4 or 5 weeks later was successful in all; as was re-inoculation after cure of a first course of malaria. Treatment of malaria was by oral administration of 30 grains of quinine sulphate for 3 days, neo-salvarsan also being given weekly for 6 weeks. Blood films were examined daily for 3 months. One case relapsed. Mental recovery followed in early cases.

C. L.

TEMPLETON (W. L.). **The Effect of Malarial Fever upon Dementia Praecox Subjects.**—*Jl. Mental Science.* 1924. Jan. Vol. 70. No. 288. pp. 92–96. [10 refs.]

It was confirmed that leucopenia is the rule in malaria. There was no cross inoculation from syphilitic to dementia praecox patients, the source of the original infection, which was presumably with *P. vivax,* not being indicated. Intravenous infection was carried out and daily rigors were the rule. Treatment was by 10 grains of quinine sulphate for three doses, and then 5 grains daily for a week. One case relapsed, presumably clinically, but he had only had 10 grains of quinine. It is not stated that blood examinations were made. Anaemia was profound and rapidly recovered from. Temporary, but little or no permanent, mental improvement followed.

C. L.

RUDOLF (G. de M.). **The Temperature-Chart in artificially inoculated Malaria.**—*Jl. Trop. Med. & Hyg.* 1924. Oct. 1. Vol. 27. No. 19. pp. 259–263. With 7 charts. [3 refs.]

Blood containing *P. vivax* was used throughout. Onset of fever was sudden or gradual. Rhythm might be frankly tertian, or frankly quotidian, or each might change into the other. The temperature usually fell to normal between rigors, but has remained raised from 40 to 176 hours. The highest temperature reached was 106·8° F. "Paroxysms in the therapeutic disease tend to reach their height slightly later in the day than do those of the naturally-acquired infection," and are of shorter duration according to the periods given by GACCINI. Two strains were used and were held to differ in their pyrogenetic effects.

C. L.

PIJPER (Adrianus) & RUSSELL (Beth Dill). **Incubational Changes in the Red Cell Count in Inoculated Malaria. (Preliminary Note.)**—*Brit. Med. Jl.* 1924. Oct. 4. pp. 620–621. [1 ref.]

After subcutaneous injection of 0·5 to 10 cc. of blood containing *P. vivax* there occurred in the 9 cases concerned a rise of 10 to 30 per cent. in the number of red corpuscles, followed by a diminution. The rise is attributed to an increased formation of erythrocytes, the result of stimulation of the red marrow. "The outbreak of fever can always be prevented by an injection of neosalvarsan as soon as the increase in red cells is well established."

C. L.

KORTEWEG (P. C.). **De aanvangskoorts der malaria tertiana.** [The Initial Fever of Tertian Malaria.]—*Nederl. Tijdschr. v. Geneesk.* 1924. Apr. 12. Year 68. 1st Half. No. 15. pp. 1622–1638. With 26 figs. [16 refs.]

Sixty-six general paralytics were inoculated intravenously in Amsterdam with 1 to 3 cc. of blood containing *P. vivax*, subtertian and quartan malaria being excluded. Probably only once did the injection fail to produce infection. In 52 cases parasites were first detected in a thick drop from the cutaneous blood on the following days: on day *5*, 2; *6*, 6; *7*, 7; *8*, 6; *9*, 8; *10*, 5; *11*, 3; *12*, 6; *13*, 2; *14*, 2; *16*, 2; *18*, 2; *21*, 2. Examination of cases were mostly made only on alternate days. The rectal temperature, taken 3-hourly, showed generally a preliminary rise during the first 3 to 5 days, commonly reaching 38°, sometimes 39° C. In the later and real malarial rise parasites, during high fever, varied in the cutaneous blood from 1 to 650 per thousand leucocytes. ROSS & THOMSON's pyrogenic limit of 200 to 500 plasmodia per cc. of blood corresponds, it is pointed out, to from 30 to 70 per thousand leucocytes. They were, however, seen with extreme rarity while this febrile stage was beginning. The fever was frequently continuous, a condition held specific for primary malaria. It is pointed out that in the original Rome-London anopheline experiments the published chart shows first a continuous and then an intermittent fever, and that, since the thick drop method had not then been devised, the failure to find plasmodia until the fourth day of fever was only to be expected.

C. L.

i. KIRSCHNER (L.) & VAN LOON (F. H.). **Over malaria-behandeling van de dementia paralytica in de tropen, (tevens bijdrage tot de malaria-immuniteit).** [Malaria Treatment of General Paralysis in the Tropics (also a Contribution to Malaria Immunity).]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1924. Vol. 64. No. 3. pp. 451–465. [38 refs.]

——— & ———. **Zur Malariabehandlung der progressiven Paralyse in den Tropen. (Zugleich ein Beitrag zur Malaria-Immunität.)**—*Klin. Woch.* 1924. Oct. 28. Vol. 3. No. 44. pp. 2001–2003. [2 refs.]

ii. VAN LOON (F. H.) & KIRSCHNER (L.). **Inoculation of Benign Tertian Malaria from Man on Man in Batavia.**—*Meded. Burgerlijk. Geneesk. Dienst in Nederl.-Indië.* 1924. Part 3. pp. 271–281.

i. Parenchymatous syphilitic affections of the nervous system are rare in the tropics, anyhow among the native populations, although

syphilis is widespread in tropical countries. Of the male population of lunatic asylums in the Dutch East Indies 9·1 per cent. of Europeans and 2·9 per cent. of Asiatics suffer from general paralysis. In syphilitic infections in the natives skin symptoms predominate: probably the skin plays an important part in the formation of antibodies. On the other hand, it is possible that feverish diseases, so common in the tropics, influence the manifestations of syphilis. The authors treated 12 sufferers from general paralysis with artificial malarial infection. In 4 cases fully developed malaria resulted, the others all living in the tropics since early childhood, either proved absolutely immune, or the fever was abortive. Of the 4 cases successfully infected, 1 Eurasian (treated with subtertian) showed a complete remission after the cure, 2 natives (treated with tertian) considerably improved.

W. J. Bais.

ii. The refractoriness to malaria of the patients here dealt with is striking. All had lived in the tropics since birth. Most appeared completely immune to four or five intravenous injections of 3 cc. of benign tertian blood withdrawn during fever. Spontaneous recovery was common; in only one out of 10 did 14 attacks occur without spontaneous disappearance of symptoms.

C. L.

SCHERBER (G.) & ALBRECHT (O.). **Die Wirkung der Malaria in Verbindung mit spezifischer Behandlung auf die syphilitischen Erkrankungen des Zentralnervensystems und der Gehirnnerven, wie die Beeinflussung der liquorpositiven, von Nervensymptomen freien Fälle durch diese Therapie im präventiven Sinne.** [Action of Malaria in conjunction with Specific Treatment in Syphilitic Affections of the Central Nervous System.]—*Med. Klin.* 1924. Sept. 14 & 21. Vol. 20. Nos. 37 & 38. (1031 & 1032.) pp. 1285–1287; 1326–1327. [2 refs.]

Since the procedure was as in WAGNER-JAUREGG's clinic, benign tertian blood was presumably used. 4 cc. were subcutaneously injected. Fever appeared between the 9th and 18th days, might be quotidian or tertian in spite of a clinically tertian donor, reached as a rule 40° to 41·5° C., and tended to lessen in severity after 7 or 8 attacks, so that in 3 out of the 15 cases it then spontaneously disappeared, but reappeared in 2 of them where no quinine had been given. The quinine treatment seems to have varied, and 2 cases of relapse occurred; in one 1 gm. of quinine had been given daily for 9 days, in the other 1 gm. for 3 days and 0·5 gm. for 9 days. Accordingly it is advised that 1 gm. should be given daily for 14 days. From the nerve standpoint a combination of malaria with antisyphilitic treatment is advised and was found most efficacious where the cerebrospinal fluid was positive.

C. L.

REESE (H.) & PETER (K.). **Die Einwirkung der Malaria tertiana auf die progressive Paralyse.** [Effect of Tertian Malaria on Progressive Paralysis.]—*Med. Klin.* 1924. Mar. 23 & 30. Vol. 20. Nos. 12 & 13. pp. 372–376. With 4 charts in text. pp. 410–412. [42 refs.]

Infection was by subcutaneous or intravenous injection of 0·5 to 1 cc. of blood, the incubation period in the former being 10 to 25, in

the latter 5 to 8 days. The absence of quinine idiosyncrasy was first determined; 12, 16 and 24 passages occurred without change in virulence. Five per cent. of cases were refractory to repeated injections, the suggested causes being some peculiarity in the technique, extravasation of blood into the subcutaneous tissue, and injection of too few parasites. It will be seen that a natural immunity is not listed. Infection was always by tertian malaria, which might be simple or double, either giving rise to the other. With the same strain a like number of parasites in the peripheral blood gave varying heights of fever. Icterus sometimes, splenomegaly rarely, appeared. Injection must be restricted to the strong; old and weakly persons must be rigorously excluded. A daily blood examination is an essential control. A temporary disappearance of fever was sometimes noted.

C. L.

LEY (Aug.). **Traitement de la paralysie générale par l'inoculation de la malaria tierce.**—*Bruxelles-Méd.* 1924. Nov. 2. Vol. 5. No. 1. pp. 1–3. [2 refs.]

This communication appears intended to bring to the notice of Belgian physicians the malaria treatment of general paralysis. Almost the only three malariological statements made are unfortunately incorrect, namely, that blood must be taken for transmission during an apyretic interval, that it must be injected *immediately* (the italics are in the original), and that such subcutaneous injection is actually equivalent to an immense mosquito bite.

C. L.

KYRLE (J.). **Die Malariabehandlung der Syphilis.**—*Wien. Klin. Woch.* 1924. Oct. 23. Vol. 37. No. 43. pp. 1105–1109.

Presumably *Plasmodium vivax* was used. Treatment was by 0·5 gm. of quinine bisulphate intravenously, repeated in 8 hours, next day 0·45 gm. of neosalvarsan, and within 24 hours two more double doses of quinine. No relapses were detected.

C. L.

BARZILAI-VIVALDI (Gemma) & KAUDERS (Otto). **Die Impf-Malaria—experimentell durch Anophelen nicht übertragbar.** [Experimental Malaria not Transmissible by Anopheles.]—*Wien. Klin. Woch.* 1924. Oct. 9. Vol. 37. No. 41. pp. 1055–1057. [3 refs.]

Because in the 4 cases in which they attempted it they failed to transmit to mosquitoes malaria which had been acquired by injection, the writers conclude that those suffering from injected malaria constitute no risk for any one in any land. A wide conclusion to rest on 4 mosquitoes.

C. L.

HORN (Ludwig) & KAUDERS (Otto). **Neue Erfahrungen zur Frage der Malariablutkonservierung.** [The Preservation of Malarial Blood.]—*Wien. Klin. Woch.* 1924. Oct. 30. Vol. 37. No. 44. pp. 1140–1142. [5 refs.]

For preservation of malarial blood, with a view to subsequent injection, over periods less than 48 hours it is advised that defibrinated blood be

kept on ice; over longer periods that blood agar be used on which the parasites are believed not only to live but to develop. It does not seem to be realized that the possibility of such development is established.

C. L.

CRAIK (Robert). **The Blood in Mild Cases of Malaria.** [Correspondence.]—*Brit. Med. Jl.* 1924. Oct. 25. p. 788.

The bases of the conclusions are 4 relapsing cases of tertian malaria personally observed, and slides from several others supplied by asylum officers. It is concluded that no paroxysm is so slight as not to excite anaemic changes, which imply for erythrocytes an "unusually active normal regeneration, accompanied at the paroxysm with brisk pathological regeneration," and for leucocytes changes "characteristic of toxic anaemia." For adequate staining of erythrocytes it is advised to add to 8 cc. of "Manson's methylene blue" which has been boiled gently for one minute, 2 cc. of unboiled solution; 2 drops of this mixture and 5 drops of 1 per cent. aqueous eosin in 1 ounce of distilled water are allowed to stain for half to two hours.

C. L.

GOROWITZ-WLASSOFF (L. M.). [**Essai d'une étude immunobiologique dans le paludisme. Réaction de fixation de l'alexine chez les paludéens.**]—*Bull. Soc. Phys.-méd. d'Orenbourg.* 1923. Nov. 5. [Summarized in *Bull. Inst. Pasteur.* 1924. June 30. Vol. 22. No. 12. pp. 486–487.]

Antigen may be obtained from the peripheral blood or placenta of an acute malaria, or from the brain in a cerebral case. Using 15 gms. of minced placenta in 100 cc. of distilled water with a few crystals of thymol, and 0·1 gm. of quinine hydrochloride to disintegrate plasmodia, shaking and filtering, the yellowish brown clear filtrate forms the antigen. It is concluded from the examination of 200 sera that antibodies appear within 15 hours and may last for 5 years. A positive reaction occurs in about 10 per cent. of persons having no previous malarial history. It is held that a negative reaction does not necessarily exclude malaria, that a positive one indicates present or past infection. [Clearly, in view of the writer's own finding, the last is assumption.]

C. L.

DE BUEN (Sadi). **El método de la gota gruesa en el diagnóstico del paludismo.**—Reprinted from *Arch. Cardiología y Hematologia.* 1924. June. No. 6. 4 pp. [3 refs.]

Diagnosis was by a thick drop preparation stained with a watery solution of Giemsa, 1 drop per cc. of distilled water for 2 or 3 minutes, and then by a watery Leishman stain of the same strength for 6 or 8 minutes. It was found that, compared with smears and using 10 minutes for examination, the thick drop added 1·5 per cent. to the positives, and that it is particularly valuable for crescents.

C. L.

CHALAM (B. S.). **First Progress Report of the Campaign against Mosquitoes, Back Bay Reclamation Scheme, Bombay. Reviewing the Origin and Progress of the Anti-Malarial Campaign during the Period June 1923 to June 1924.**—*Indian Med. Gaz.* 1924. Oct. Vol. 59. No. 10. pp. 481–487. With 3 figs & 2 charts in text. [5 refs.]

Seeing that the Port of Bombay has recently been lavishly distributing malaria by the shipload, at least as far as the Port of London, this account of the reclamation of Back Bay is of more than local interest. Sludge, mostly clay, from the harbour, is being led across the island in pipes and run out into Back Bay. The sludge sets into an impermeable mass, fissuring during solidification, water probably collecting in the fissures. The forcibly escaping sludge scoops out a deep depression at the end of the pipe line, and when the next section of pipe is added this water-containing hollow persists. Moreover, innumerable depressions cover the whole uneven surface of the new land, and it was anticipated that when the monsoon bursts they would constitute anopheline breeding places. It is precisely at this point that the Report breaks off.

C. L.

PHILLIPS (J. A. S.). **On the Results of Anti-Malaria Measures in Five Towns in the United Provinces.**—*Indian Med. Gaz.* 1924. May & June. Vol. 59. Nos. 5 & 6. pp. 221–228. With 3 maps. pp. 273–278.

A detailed consideration of the health of the towns of Saharanpur, Nagina, Kosi, Meerut and Lucknow before and after antilarval measures were instituted. Regarding Saharanpur, ROBERTSON pointed out in 1909 that irrigation from wells lowered the subsoil water, and, owing to the labour involved, rarely sufficed to saturate the ground to the extent of producing anopheline breeding places, whereas canal irrigation so raised the subsoil water that pools might form in depressions of the sodden soil. Accordingly canal irrigation and rice cultivation were forbidden in and near the town (a prohibition withdrawn in 1922), tanks and boggy land were filled and drains and nullahs cared for. In over 2,500 children examined on each occasion the percentage of palpable spleens fell from 78·8 per cent. in 1909 to 7·3 per cent. in 1923. In the same period the parasite index fell from 53·8 to 10·3. Under like conditions the spleen and parasite indices fell in Nagina from 79·1 and 44·4 to 13·49 and 6, in Kosi from 81·3 and 26 to 42·5 and 6·3, in Meerut from 5·9 and 6 to 1·3 and 3, and in Lucknow from 2·2 and 7·4 to 1·6 and 6·1. The possibility of positive lowering of the subsoil water is not considered.

C. L.

RODENWALDT (Ernst). **Speziesassanierung.** [Species Sanitation.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Aug. Vol. 28. No. 8. pp. 313–334. [12 refs.]

For the benefit of German readers the writer emphasizes the familiar and what is probably the general procedure, that only those anopheles should be attacked which are definitely implicated as local hosts of malaria parasites. This he calls species sanitation. For instance, of the 28 species known in the Dutch East Indies, only three, *Myzomyia*

ludlowi, *M. aconita* and *Myzorhynchus sinensis* are established as malaria carriers there. A knowledge of specific larval characters is a necessary preliminary to breeding-place elimination. The influence of numbers, natural infection rate, and house-haunting habits is noted. Large effects on the spleen index cannot be expected in a few months. Other than Dutch references are not listed, but mentioned in the text.

C. L.

THIROUX (A.). **La prophylaxie du paludisme dans les villages ; les équipes itinérantes dans les colonies françaises.**—*Congrès de la Santé Publique et de la Prévoyance Sociale, Marseille, 11–17 Septembre, 1922. Comptes Rendus.* pp. 341–346. [3 refs.]

There have been established in Annam itinerant antimalarial missions, each with a European doctor, his assistant, a public works officer, and a subordinate staff. Proceeding in automobiles they carry the materials for the erection of three huts, capable of being put together within four hours as mosquito-proof structures, two housing the staff and one acting as a dispensary. The huts are provided with electric light and fans, run evidently off the motor. The unit settles down in one place for several weeks on a suitable site, examines and treats the infected, discovers and eliminates anopheline breeding-places, and trains a local staff which will, or should, continue the necessary measures. Good roads or rivers are essential for such a programme, and an arrangement of loads which will not overtask any launch or ferry-boat which may have to be employed.

C. L.

ROUBAUD (E.). **Paludisme et agriculture ; le rôle du bétail dans la prophylaxie antipalustre.**—*Congrès de la Santé Publique et de la Prévoyance Sociale, Marseille, 11–17 Septembre, 1922. Comptes Rendus.* pp. 346–353. [23 refs.]

Roubaud again presses, in somewhat modified form, his view regarding the influence of domestic animals in preserving man from anopheline attack. It is not reduction of anopheles which renders countries non-malarial, nor does he approve of the stress laid by others on improved well-being in this respect, but he holds that freedom from malaria depends essentially on the preference of certain anopheles for animals rather than for man. Man will be attacked (1) if there be too many anopheles to feed satisfactorily upon the available cattle ; (2) if the cattle be not properly placed ; (3) if they be of the wrong kind. The first condition is met by anopheline, mainly antilarval, measures ; the second by the site and peculiarities of the animal house if the mosquito be a house feeder, or by the grouping of animals in the open if it be not, the results not being, however, foretellable ; the third by providing the proper kind of scapegoat, which, if one may be permitted an Irish bull, is a cow for *A. maculipennis*, and a buffalo for *Myzomyia ludlowi*.

C. L.

KLIGLER (I. J.). **Malaria Control Demonstrations in Palestine. I. Malaria Control and its Cost.**—*Amer. Jl. Trop. Med.* 1924. Mar. Vol. 4. No. 2. pp. 139–174.

This paper considers work done. A reduction of between 70 and 90 per cent. of the estimated malaria was effected. Breeding places of

mosquitoes in Palestine are mainly artificial and controllable by continuous development of sanitary habit and satisfactory treatment. A large measure of control was obtained for P.T. 50 per head in the first year, and for less afterwards.

C. L.

MOUTOUSSIS (Constantin). **La lutte contre le paludisme.**—*Grèce Méd.* 1924. May. Vol. 26. No. 5. pp. 42–44.

The malaria problem in Greece has been intensified by the return of demobilized soldiers and the arrival of refugees, both infected. The writer is much impressed by the methods in use in Italy, and their obvious applicability to Greece. The basis is an instructed public opinion founded on an instructed antimalarial personnel, consisting of doctors, assistants, engineers and agriculturists, controlled by a Ministry of Health.

C. L.

GRASSI (B.). **Malariabekämpfung mit "Mikrothan" und "Larviol."** —*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Sept. Vol. 28. No. 9. pp. 406–408.

Mikrothan is used against the imago, a 5 per cent. solution being squirted upon them by an ordinary garden syringe as they sit on the walls of stables. Anopheles, particularly females, culices and flies can then be found thick on the ground. Mikrothan has such a pleasant attractive smell that in a short time the walls will again be studded with attracted mosquitoes.

Larviol, 15 gm. to the square metre, was sprayed on water containing many larvae. None were found there next day. It appears to be a heavy oil, since it is referred to as less inflammable than petroleum. The question of cost and comparative tests is not opened, but the makers are quoted as holding that ducks can drink the water soon after spraying, and that fish survive—if the water be deep enough.

C. L.

HANSCHELL (H. M.). **The Prevention of Sub-Tertian Malaria—(Failure of Quinine).**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1924. Mar. 20 & May 15. Vol. 18. Nos. 1 & 2. pp. 57–62.

"This paper is an attempt to show that by indirect experiment, where fairly exact control was obtained over the human subject and the quinine, but very little control over the mosquito, 5 grains of quinine daily did not prevent the development of the sporozoits of *P. falciparum* in the human host." The common factors in this experiment were :—a five-grain tabloid of quinine sulphate taken every day with the evening meal ; no lights being allowed after dark, every one was under his net well before this ; every mosquito bite was noted at a daily morning inspection, all being found below the elbow ; about 300 mosquitoes were caught in the boys' compound, 50 per cent. being anopheles and 5·5 per cent. being found infected on dissection ; the officers' huts lay between the men's huts and the boys' compound ; prior to the experiment blood films of all were examined and found negative ; six of the nine officers and none of the men had previously been in the tropics. The only apparent difference between officers and men lay in the use by the former of three-foot wide, purchased, mosquito nets, by the latter of 18-inch wide, issued, ones. No

officer ever experienced a bite, suffered from fever, or showed plasmodia in the blood. All the men went down one by one with subtertian malaria after showing from 13 to 31 bites and taking the single quinine tabloid for from 78 to 102 consecutive days. Immediately on showing malaria each man slept thenceforward under a three-foot wide mosquito net and was given three tabloids of quinine sulphate (15 grains or 1 gm.) for 14 days only, after which he had no more quinine at all. No fever lasted more than three days. There were no relapses. That fact, and the buzzing in the ears accompanying the administration, showed that the tabloids were efficacious. An unpleasantly confirmatory personal experience closes the evidence, which should be studied in detail, is presented with completeness and clarity, and appears to lead to inevitable inductions.

C. L.

i. SHELTON (C. F.). **The Malarial Parasite Index amongst Native Children of Arusha and Surrounding District. Appendix No. V.**—*Tanganyika Territory. Ann. Med. Rep. For the Year 1922.* pp. 90–91.

ii. OBREGIA (A.) & POPEA (A.). **Deux cas de psychose palustre. (Étude anatomo-clinique.)**—*Bull. et Mém. Soc. Méd. Hôpit. de Bucarest.* 1924. May. Vol. 6. No. 5. pp. 136–140.

iii. KIDSTON (T. A.). **The Prophylaxis of Malaria as applicable to the Naval Service in Time of War.**—*Med. Jl. Australia.* 1924. May 17. 11th Year. Vol. 1. No. 20. (Supplement). pp. 317–319.

iv. LANGER (Joseph). **Autochthone Malaria und Schwarzwasserfieber bei der 6 jährigen Tochter eines Prager Kriegsmalarikers.** –*Med. Klin.* 1924. May 11. Vol. 20. No. 19. pp. 636–637. [13 refs.]

v. BROSIUS (Otto Tiemann). **Cerebral Malaria. Report of an Unusual Case.**—*Jl. Amer. Med. Assoc.* 1924. Sept. 13. Vol. 83. No. 11. pp. 841–842. [1 ref.]

vi. LELLIS (Areobaldo). **Impaludismo e Molestia de Addison.**—*Brazil-Medico.* 1924. Aug. 2. Year 38. Vol. 2. No. 5. pp. 67–68. With 1 fig.

vii. GLASNIK MINISTRSTVA NARODNEGA ZDRAVJA. Belgrade. 1924. 69 pp. With 63 figs.—[**Une exposition relative au paludisme à Belgrade.**]—[Summarized in *Bull. Office Internat. d'Hyg. Publique.* 1924. July. Vol. 16. No. 7. pp. 927–928.]

viii. 1924. 50 pp. With 1 map.—[**La paludisme à Belgrade en 1923.**]—*Ibid.* pp. 926–927.]

i. Of 50 children examined, all but 2 under 10 years old, 4 of the 5 cases of malaria discovered were possibly attributable to infection acquired elsewhere.

ii. In two mental cases autopsy revealed malaria and Marinesco's nodules in the brain. The psychoses are attributed to malaria.

iii. The recognized principles of malaria prophylaxis are applied to ships and to camps, temporary or more permanent, of landing parties.

iv. Parasites were not found. Urine drawn by catheter was blood red.

v. A feverish case with tetanoid convulsions and unconsciousness was detected as malarial when once the blood was examined. Intravenous injections of 6 grains of quinine bihydrochloride three times a day for three days, followed by oral quinine, resulted in cure.

vi. A case of malaria followed within a few weeks by asthenia, pigmentation, tachycardia and exaggerated knee-jerks. The condition improved after injection of suprarenal extract.

vii. There being a million malaria subjects in the kingdom of Serbia, the Tropical Diseases Laboratory at Belgrade has opened an exhibition illustrating the aetiology and distribution of malaria, the anopheline breeding-places, the means by which infection may be prevented, etc.

viii. In 1,881 persons examined the parasite index detected was 47·2, and those in which the splenic index was also positive 60·4. *P. vivax* was implicated.

C. L.

i. Brahmachari (U. N.). **Difficulties in the Diagnosis and Differential Diagnosis of Malarial Fevers.**—*Calcutta Med. Jl.* 1924. Apr. Vol. 18. No. 10. pp. 683–697.

ii. Goresco (C.) & Popesco (C.). **Le rôle du néosalvarsan dans le paludisme.**—*C. R. Soc. Biol.* 1924. July 18. Vol. 91. No. 25. pp. 500–501.

iii. de Castro (A. Bayley). **A Case of Double Malarial Infection, complicated with Typhoid Fever, in a Patient Six Months Pregnant.**—*Indian Med. Gaz.* 1924. Sept. Vol. 59. No. 9. p. 463. With 1 chart.

iv. Boyd (J. S. K.). **The Principles of the Prophylaxis of Malaria: with the Administrative and other Measures for their Application on Active Service.**—*Jl. Roy. Army Med. Corps.* 1924. Aug. & Sept. Vol. 43. Nos. 2 & 3. pp. 95–100 : 182–201. [15 refs.]

v. Tricoire (R.). **Accès palustres à forme pulmonaire.**—*Bull. Soc. Path. Exot.* 1924. July 9. Vol. 17. No. 7. pp. 568–569.

vi. Wilson (C. J.). **Latent Malaria.**—*Kenya Med. Jl.* 1924. July. Vol. 1. No. 4. pp. 113–116.

vii. Maslova (A. N.). **The Changes in Quantity of Blood Platelets (Bizzozero) and the Velocity of Coagulation of the Blood in Malaria.**—*Russian Jl. Trop. Med.* Moscow. 1924. No. 3. In Russian. pp. 7–14. With 1 chart in text. [16 refs.] With English summary.

viii. Ljachowezki (A. M.). **Die isoagglutinierenden Eigenschaften des Blutes bei Malaria.**—*Ibid.* No. 1. In Russian. pp. 20–23. [6 refs.] With German summary.

i. The manner in which malaria may simulate and complicate all diseases is aptly illustrated from the Rai Bahadur's ripe experience.

ii. Working in Bucharest the writers find that neosalvarsan does not kill the subtertian parasite, but acts as a satisfactory provocative. They suggest, without offering evidence, that this unmasking effect probably renders the parasites more accessible to quinine.

iii. Both tertian and subtertian parasites were identified. Quinine was given. The diagnosis of typhoid was clinical. The fever lasted 14 days, a rise on the last day being due to a quinine abscess. Pregnancy was not terminated.

iv. This paper constitutes the Parkes Memorial Prize Essay, and consists of a résumé, historical and practical, of the appalling effects which malaria may have upon an army, and of the best means of control of which we have cognizance.

v. In two case where pneumonia was convalescing intercurrent malaria—in one case benign, in the other malignant tertian—brought on acute pulmonary congestion with expectoration of blood containing parasites. Both cleared up under quinine.

vi. The admirably frank reasoning shows that a number of Africans who died of divers complaints were, as the march of events showed, in all probability ill of malaria.

vii. In examination of fifty cases of malaria it was found that, in the great majority, during the period of the attack the quantity of blood platelets (Bizzozero) and the coagulation time are lessened.

viii. Neither fever nor quinine in large doses alters the agglutination of the blood. Those ill of severe malaria belong mostly to groups I and II of Moss. Those in group IV withstand malaria most easily.

C. L.

i. MEHEMMED (Kadri). **Ein Fall von Mischinfektion mit drei Arten der Malariaparasiten.**—[Infection with Three Species of Parasites.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. July. Vol. 28. No. 6. pp. 236-237.

ii. BITTER (Ludwig). **Das Vorkommen von Malaria quartana in Norddeutschland.**—*Deut. Med. Woch.* 1924. June 27. Vol. 50. No. 26. pp. 880–881. With 1 chart in text. [3 refs.]

iii. ALESSIO (Francesco). **Sopra un caso di splenomegalia cirrogena da malaria.**—[A Case of Malarial Cirrhotic Splenomegaly.]—*Gaz. d. Ospedali e d. Cliniche.* 1924. June 15. Vol. 45. No. 24. pp. 555–559. [7 refs.]

iv. STRANSKY (Erwin). **Zum Kapitel : Malaria und Epilepsie.**—*Muench. Med. Woch.* 1924. June 13. Vol. 71. No. 24. pp. 787–788. [7 refs.]

v. HINES (Laurence E.) **Accidental Malarial Infection in Syphilis of the Brain.**—*Jl. Amer. Med. Assoc.* 1924. Oct. 11. Vol. 83. No. 15. pp. 1161–1162. With 2 text figs.

i. A Turkish soldier in Asia Minor showed schizonts of tertian and quartan and gametes of subtertian malaria. Under quinine the tertian forms disappeared first, leaving crescents and disorganized quartan parasites, the crescents still persisting after 16 gm. of quinine had been taken over 23 days.

ii. A case of quartan malaria, microscopically verified and clinically typical, was acquired in Kiel, apparently the only case on record in Schleswig Holstein during this century, although formerly it seems not to have been uncommon in Northern Europe, especially in South Holland.

iii. There was a history of malaria contracted some 7 years earlier, and pigment was found in the spleen. Wassermann's reaction gave complete haemolysis. Alcohol is not mentioned. No plasmodia were found.

iv. Seeing that epileptic symptoms may complicate a malaria, or malaria may complicate epilepsy, a case is discussed in which a man, originally nervous and made more so by war service, contracted subtertian malaria with 24 hours' loss of speech and subsequent epileptiform attacks.

v. The man died untreated from cerebral subtertian malaria. There was no anatomic evidence that the syphilitic lesions were changed by the malaria infection.

C. L.

MALARIA (CORRESPONDENCE).

CATANEI (A.). **Essai critique sur la morphologie des parasites du paludisme.**—*Arch. Inst. Pasteur d'Algérie.* 1923. Vol. 1. No. 1. pp. 10–108. With 3 plates. [59 refs.]

Regarding the last and critical sentence of the notice of his paper appearing in this *Bulletin*, Vol. 21. p. 608, Catanei writes that he had rigorously excluded therefrom all reference to the phylogenic position of the classical types of malaria parasite ; and that while he invoked the absence of quinine administration as explanatory of the appearance of atypical forms, it is illogical to attribute to him the inverse conclusion, namely, that it is quinine treatment which maintains true to type *P. vivax, P. falciparum* and *P. malariae.*

NATIVE DIETARIES.

MacRae (Donald M.). **Diet in Relation to Health and Disease in the Tropics and Subtropics.**—*S. African Med. Rec.* 1924. Mar. 22. Vol. 22. No. 6. pp. 122–125.

The object of this paper is to confound those faddy physiologists who teach that too much nitrogenous food is eaten in the tropics. That white people living in the tropics should conform more or less to the diet of the native is shown to be absurd and harmful, since the native himself is living upon the very edge of starvation. Examples proving these contentions are quoted from the author's personal experience in Bechuanaland Protectorate and from the literature, special emphasis being laid upon the splendid work done in this respect by the Americans in the Philippines. Not only a liberal supply of protein but also of carbohydrate and fat is as essential in the tropics as anywhere else.

The author's attitude may well be summed up in a quotation from Woodruff: "We formerly starved in summer and prayed for cold weather, so that we could eat. If we had only eaten better we need not have prayed so hard!"

A. D. Bigland.

Jansen (B. C. P.) & Donath (W. F.). **The A-Vitamin-Content of Different Indian Foodstuffs, and the Value of the Proteins of these Latter, as a Supplement to the Proteins of Rice.**—*Meded. Burgerlijk. Geneesk. Dienst in Nederl.-Indië.* 1924. Pt. 1. pp. 46–98. With 19 graphs. [Numerous refs. in footnotes.]

Rice protein with regard to its amino-acid content is of good biological value, yet it is not sufficient as the sole source of protein. Accordingly, in man, when rice is the main article of diet this defect must be overcome by the supply of other proteins. Rice is also defective as regards its vitamin A content.

The object of this research is to ascertain which proteins in common use in the Dutch Indies are most suitable for correcting the protein deficiency of rice and also to discover the best means of increasing the vitamin A factor. From experiments on white rats the authors classify local foodstuffs into three groups according to their vitamin A content:—

Group 1.—Those which are very rich in this factor, and of which 1–5 per cent. added to the diet makes it sufficient.

Fruits.—Banana, sawu manila [*Acheras sapota*, L.], papaya, avocado. and djambu [*Eugenia*].

Vegetables (fresh and boiled).—Pods and leaves of katjang pandjang [*Vigna catjang*], leaves of the cassave plant, kangkong leaves [*Ipomaea aquatica* Forsk.], pumpkin, terong lalab [*Solanum trongum* Poir.] and fresh cucumber. Labu ajer [*Lagenaria*], terong sajur [*Solanum melongena*, L.], and lobak [*Raphanus radicula*] perhaps just fall within this group.

Other foods.—Duck eggs, fresh or salted, butter, tinned or frozen, and cod-liver oil.

Group 2.—Includes those foodstuffs which when used exclusively in the diet will not prevent the symptoms of A-avitaminosis, viz., rice, polished and unpolished, maize (at least the white variety), coco nuts and pea nuts and the "press-cake" made from the two last.

Group 3.—Includes foodstuffs which even up to a ration of 10 per cent. do not compensate a diet already poor in vitamin A, viz., meat, katjang idjo, soy-beans, tempe kedele,* dried fish, dried shrimps, terassi†, and oil-palm-oil.

The experiments regarding the biological protein value of these foodstuffs have apparently not yet been completed. From the results so far obtained it would appear that the proteins of soy-beans, tempe kedele and milk are very powerful in compensating rice deficiency; in this respect even more so than meat.

The authors conclude with the simple statement that the use of one banana a day will probably prevent A-avitaminosis in those living upon a rice diet.

A. D. B.

PECK (Eugene C.). **Note on Vitamine C in Sweet Potatoes.**—*China Med. Jl.* 1924. Feb. Vol. 38. No. 2. pp. 125–127. [5 refs.]

The sweet potato is an important food in warm countries and is therefore worthy of dietetic study. The author states that "its energy content is about four times that of lettuce or cabbage; its protein, although low, is better than in the greens; its ash is about the same as in leaves, and it is a valuable source of Vitamines A, B, and C."

Apparently these statements meet with universal acceptance with the exception of the Vitamin C content of the sweet potato. Some workers have stated that there is none of this vitamin present at all. Accordingly, experiments were carried out with guineapigs to ascertain the true position of affairs. The results show that "ten gm. of raw peeled sweet potato is amply sufficient to furnish enough vitamine C each day to prevent and cure scurvy in a guineapig." From further experiments, not yet completed, it appears that sweet potatoes baked in the ordinary way still contain a considerable amount of vitamin C.

A. D. B.

JANSEN (B. C. P.) & DONATH (W. F.). **Metabolic Experiments on Rats and Digestibility of the Proteins of Some Foodstuffs.**—*Meded. Burgerlijk. Geneesk. Dienst in Nederl.-Indië.* 1924. Pt. 1. pp. 25–45. With 1 plate & 1 fig. [11 refs.]

Walu or labu leaves (*Curcurbita pepo*, L.) contain a large amount of protein, so that it seemed advisable to the authors that experiments should be carried out upon rats with regard to the ready-digestibility or otherwise of this protein. The results show that the proteins in question are digested a little more readily than those of unpolished rice but less readily than those of polished rice. In experiments upon the human subject similar relative results were obtained, but the absolute figures were somewhat lower.

A. D. B.

SOPP (Eva). **Bananens vitaminindhold.** [The Vitamin Content of the Banana.]—*Norsk Magazin f. Laegevidenskaben.* Kristiania. 1924. Sept. Vol. 85. No. 9. pp. 732–735. With 2 charts.

Banana is an excellent food for children, for it contains 19–20 per cent. sugar and starch, 4–5 per cent. protein and ½–1 per cent. fat. It

* Prepared by fermentation with boiled soy-beans.
† Half-dried shrimps or fish pounded into a pulp and left to ferment.

is, however, essential to know whether it contains sufficient vitamins. Previous workers agree that the B and C vitamins are present, but contradictory results have been obtained with regard to A. The supply of A-vitamin in the food is of vital importance in the case of children.

Young rats were put on a basic diet free from A-vitamin till they began to lose weight and show signs of A-deficiency. The majority had very advanced xerophthalmia. They were divided into three groups. Group I received bananas *ad libitum* in addition to their basic diet; Group II received 1 gm. banana (each rat) daily in the basic diet; and Group III received 2 gm. banana daily in the basic diet. All the groups began to improve after a fortnight on the banana diet, the eye lesion being the first to show a change. In 3 weeks' time there was an improvement in the general condition and the weight began to increase. The rats grew steadily until the end of the experiment, when they were fully developed. The accompanying curves show that the only difference between the groups was that Group I increased most quickly and eventually attained the greatest weight, while Group III had a similar advantage over Group II. Two control series were made, in one of which the young rats received banana *ad lib.* with their basic diet from the first, while in the second they received their basic diet without any banana. The latter group soon fell sick and were all dead in 7 weeks, but the former thrived well.

The experiments show that the disease-preventing or healing component of the A-vitamin in the banana is very active, while the growth-promoting component acts rather more slowly but is present in sufficient quantity. If, as there is no reason to doubt, these results can be applied to man, the banana may be regarded as an ideal food, for it is not only very nutritious, easily digestible and palatable, but also contains an adequate quantity of the A-vitamins so important for young individuals. The daily dose for an experimental animal was 1 gm. banana per 50 gm. body-weight. For a child of 3 years, whose weight is about 12–14 kilogm., it should be 240–280 gm. banana per diem, or 4 to 5 bananas. Considerably smaller quantities, however, ought to be sufficient.

E. E. Atkin.

MISCELLANEOUS.

FUKUSHIMA (Hisashi). **Recent Prevalence of Influenza and its Prophylactic Vaccination in the Japanese Navy.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 733–736.

Between March 1918 and February 1922 there were five epidemics of influenza in the Japanese navy affecting 30,053 persons and causing 431 deaths. The first epidemic affected 12,000 men and was without mortality, the second and third affected about 4,000 men with 130 and 212 deaths, and the fourth and fifth affected some 2,000 men each, with 7 and 8 deaths. For prophylactic vaccination *B. influenzae* and the pneumococcus were employed. About three-quarters of the average strength were vaccinated at three separate periods. The author concludes his discussion of the results with the remark that its efficacy has not been established.

A. G. B.

TEN BROECK (Carl). **The Immunity associated with the Presence of Tetanus Bacilli in the Digestive Tract.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* p. 710.

In Pekin a third of the population has been found to carry typical tetanus bacilli in their digestive tracts. Infection, however, is rare in spite of the use of human excreta as fertilizer. Examination showed that the blood of the tetanus bacilli carriers contained antitoxin, whereas that of the non-carriers had none, but the serum of these often agglutinated the bacilli suggesting that they had been carriers and possessed potential immunity. The youngest carrier was aged five.

A. G. B.

i. MARJORIBANKS & O'DRISCOLL. **Observations on Epidemic Encephalitis Lethargica in Sarawak.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 806–815.

ii. LALUNG-BONNAIRE, MOTAIS fils & PONS. **Encéphalite léthargique en Cochinchine.**—*Ibid.* pp. 817–823.

i. Encephalitis lethargica was observed in Sarawak for the first time in 1923 when 8 cases came under notice. Its origin is obscure. The infected persons lived in different parts of the country and intercommunication was very improbable. The clinical features were of an irritant rather than a somnolent type. The constant symptoms were headache; twitching of groups of muscles, anaesthesia and neuralgia; constipation; tachycardia. Four died. Details are given of each case. The authors point out that in such an illness in the tropics besides the cosmopolitan diseases one has to consider malaria and sun exposure. One case simulated belladonna poisoning.

ii. The disease was first seen in Saigon in 1922, since when about 12 cases have been admitted to hospital. Details are given of five. Inoculations were made into rabbits and an affection transmissible to successive animals produced with the characters described by LEVADITI. The authors think that the disease has been present in Cochin China for a long time.

A. G. B.

DE LANGEN (C. D.). **The Chemical Composition of Gall-Stones in the Dutch East Indies and their Detection diagnostically by Means of Roentgen Rays.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 769–778.

Dr. de Langen returns to this subject (see this *Bulletin*, Vol. 20, p. 648). In the Dutch East Indies the well-known facetted cholesterin stones are hardly ever found, and in the rare instances of the presence of gall-stones they are soft, brown pigment stones, often at some depth in the substance of the liver. He has collected stones from 27 patients, 20 of whom were natives, for the purpose of chemical examination. In 6 of the 20 they were found in the liver and not in the gall bladder, in 5 in the gall bladder only, and in 9 in both situations; in Europe intrahepatic stones are rare. The analysis of the stones shows cholesterin 0·9—20 gm. (in only 3 instances above 9·0), bilirubin, 28·7–70, and calcium oxide 4·2–44·3; bilirubin salts form in the majority of cases 50–60 per cent.; the cholesterin is low, whereas in Europe it constitutes 80–90 per cent. The native stones have the same contents as the gall; they are, in fact, dried gall. Cholesterin stones are rarely seen in an X-ray examination, but as the percentage of chalk increases so does the shadow thrown; X-ray diagnosis is therefore of greater value in this respect in the Dutch East Indies than in Europe. These brown pigment stones are the direct consequence of a chronic inflammation of the biliary ducts. As has been stated before, the low cholesterin content of the stones is attributed to the low percentage in the blood, and this again to the small proportion of lipoids in the food of the natives of the Dutch East Indies.

A. G. B.

HONNA (F.). **Ueber die Noma.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress Singapore, 1923.* pp. 830–844.

The author at Taihoku, Formosa, sees noma fairly frequently among the Chinese in that island and tabulates 12 cases, all but one in children under eight. It is usually a sequel of measles. The prognosis is bad, the mortality about 92 per cent. The disease is temporarily improved by salvarsan treatment, but injection often fails owing to lack of supply of arterial blood and local application of the drug is advised. The etiology is discussed at some length.

A. G. B.

GALLOWAY (David J.). **Opium Smoking.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 864–885.

The author has had through his hands a very large number of persons who smoked opium or used it in other ways, and he has here tabled a considerable body of varied and significant statistics of the subject, besides discussing his observations on opium-smoking among his Chinese clients in particular.

He is of opinion that the Chinese, like certain elements of the population of India, possess a certain amount of immunity to opium, and that this idea of a limited immunity is, inversely, corroborated

by the undoubted fact that they display a peculiar susceptibility to iodine, ipecacuanha, and belladonna, and also—when addicted to opium—to mercury.

As to the acquisition of the habit of opium-smoking, the better class of native Chinese (not the Straits-born Chinese, with whom the use of opium is not in favour) take to it as one of the customs of luxurious ease; but among the poorer Chinese (and also occasionally among the wealthier class) it is deliberately adopted for the relief of abdominal pain—particularly, among women, of pelvic pain—and the nocturnal pains of syphilis, and for its acknowledged therapeutic effect in phthisis, diabetes and other forms of glycosuria, and malaria.

The author describes his observations of the effects of opium-smoking, immediate and remote. At the beginning of the performance there is a rise in pulse-rate and blood-pressure, which is soon followed by a steady fall to below normal; and there is a slight feeling of exhilaration, which passes into a state of relaxation and restfulness and then of slight and brief narcosis from which the smoker emerges with faculties fully—sometimes praeternaturally—alert. The habit has some obscure adverse effect upon nutrition—there is usually a tendency to emaciation, even among the well fed—but it does not seem to shorten life. The statements that smoking in moderation is impossible and that the dose must be steadily increased are not at all in accord with the author's observation. The habit certainly takes this much hold: that sudden deprivation causes feelings of anxiety and faint stomach and incapacitates the individual for 2 or 3 days; and, in the case of old and heavily addicted smokers, may cause all the physical symptoms of shock and collapse. The author has included his experience of the effects of opium-smoking on 58 women, 38 of whom began to smoke before the age of thirty. No disturbances of menstruation were manifested. Of the younger women 22 had borne children during the persistence of the habit, one had had 7, two had had 6, and families of 3 and 4 were numerous.

It is in the lower ranks of society that the bad effects of opium-smoking are observed. Excessive smokers commonly suffer from diarrhoea and severe abdominal pains, pyoalveolitis, and a loose phlegmy cough; but the one constant and unmistakable sign is a lividity—a dull earthy pallor or bronzing—not accompanied by dyspnoea, and as characteristic of the opium sot as is the "kidney face" of chronic renal disease; concomitant with this lividity is tachycardia. These stigmata, which do not necessarily imply any physical or mental incompetence, have been observed in only 59 of the author's cases.

The belief that excessive opium-smoking is a cause of insanity is not supported by the author, nor by two successive superintendents of the local lunatic asylum. Of 38 patients admitted between 1893 and 1908, whose insanity was alleged to be due to this form of intemperance, the condition in 29 could be definitely traced to other causes and in the remaining 9 could *not* be definitely attributed to opium.

Unlike the Chinese the Malay races seem to be peculiarly and very ominously susceptible to opium. The control of the drug in the Malay States is therefore a more than ordinary complication of public-health, economic, political, and ethical problems, with the crucial points of which the remainder of this most interesting paper is mainly concerned.

A. Alcock.

ASPLAND (W. H. G.). **China and Narcotics.**—*China Med. Jl.* 1924. July. Vol. 38. No. 7. pp. 563–568.

The author is Secretary of the International Anti-Opium Association, Peking, and has investigated the amount of narcotics and cocaine used for legitimate medical purposes in China, which would appear to be largely an exercise in guessing. He says that fifty times the legitimate amount of morphia is smuggled into China. He quotes a statement made by "Dr. CHODZKO of Japan" to the League of Nations Health Committee on the mortality of opium smokers in Formosa. It is to the effect that among fifty thousand licencees the mortality is found to be 80 per mille, whereas that among non-smokers does not exceed 20–25 per mille.

A. G. B.

FITZGERALD (R. Desmond). **A Thesis on Two Tropical Neuroses (Amok and Latah) peculiar to Malaya.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 148–160. [12 refs.]

VAN LOON (F. H.). **Latah, a Psycho-Neurosis of the Malay Races.**—*Meded. Burgerlijk. Geneesk. Dienst. in Nederl.-Indië.* 1924. Part III. pp. 305–320.

GALLOWAY (David J.). **On Amok.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore, 1923.* pp. 162–171.

We must disagree strongly with the statement made by Dr. Fitzgerald in his paper on "Latah" that there is no connexion between Insanity, Hysteria, and Epilepsy. Insanity, of course, is merely a legal term, and has no definite medical meaning, for a hysterical or an epileptic patient may easily require certification as insane if the disorder of conduct is sufficiently marked as to give rise to danger to others or to the patient himself. Hysteria and Epilepsy, on the other hand, are the names applied to certain groups of mental disorders in both of which the fundamental diagnosis rests on there being a disturbance in regard to the relation between consciousness and the performance of motor reactions. The major fits in both disorders may be indistinguishable, in both there may be outbursts of conduct which appear quite purposive in nature, but which are unaccompanied, or at any rate only partially accompanied, by conscious awareness and control on the part of the subject, hysterical manifestations and epileptic fits may occur in one and the same individual, and in both disorders certain secondary reactions or extensions of the mischief may arise which lead to more severe mental disturbance and "insanity." The great difference between them lies in the fact that the hysterical reaction depends to a great extent on the social surroundings, whereas the epileptic is more personal to the patient and relatively independent of environmental influence; both are manifestations of a weakness of the individuality in that there is a tendency to a splitting up, or a dissociation, within the mental function in the presence of subjective stress.

Now these two disorders of Latah and Amok seem to bear a striking resemblance in many ways to the European Hysteria and Epilepsy in many of their symptoms. Latah would appear to be a condition typically arising in individuals of strong affective tendencies, highly emotional, highly sensitive as regards sensory perceptions, and with a

marked failure of the self-assertive tendency in regard to their relations with other individuals. Van Loon points out that the incidence is much higher amongst women, and particularly where the patient has worked in association with European households, such situations naturally bringing about an intensification of the submissive attitude in the personality. The main differences between the actual symptomatology of the Asiatic and European disorders would seem to be explicable, partly on the more primitive mental development of the Malay race which Van Loon notes, and also on the more primitive relationships within the social order which we think he has failed sufficiently to take into account.

Of the two writers whose papers on this subject are here considered, Dr. Fitzgerald discusses the condition from the point of the objective manifestation and the practical outcome of the disorder. He classifies his cases into five groups, which are as follow: (*a*) subjects of high nervous sensibility; (*b*) emotional subjects; (*c*) suggestible individuals; (*d*) individuals with weak intellectual capacity; (*e*) women; and it is hardly necessary to point out that the total picture called up by these five terms gives a very good representation of the typical hysterical mentality in European countries. In addition, the author touches upon the medico-legal aspect which these cases may present in the event of injury to other individuals or to property as a result of the conduct of the patient during an attack of the malady.

Dr. Van Loon's paper is more comprehensive in that he deals with a wider field, the results of his questionnaire which he sent to a large number of medical men being of great importance and interest, and also he sets himself the task of dealing with the subjective disturbance in the mind of the patient. Here the difficulty lies, as he points out, in the understanding of the more primitive mentality of the native mind, but he analyses such material as he has obtained from the patients in regard to their own feelings and motives for their behaviour, and he concludes that "Latah is a disorder grown on the soil of the predisposed Malay psyche, in which chiefly the primitive way of reacting on affects of fright and on acute emotions, and a strong imitative-hypersuggestibility play their part."

Amok, a condition of a furor of excitement with much motor restlessness, appears to resemble hysteria in that the outburst may be provoked by an emotional stress, to resemble epilepsy in that the conduct is often purposive and automatic, and to bear a relation to the excitement of acute confusional and delirious states in that it is not infrequently associated with some profound toxic infection of the patient such as malaria. We must again disagree with Dr. Fitzgerald, who would apply the term "neurosis" to the condition, for it is clear that no more acute psychosis could possibly be conceived than one which gives rise to violence of a homicidal character such as is met with in the runner amok. He finds much to indicate the close relation between the disorder and the automatic conduct following an epileptic fit, and while allowing himself to regard malaria as a cause, he deprecates the determining value of drug intoxications in favour of more purely psychic causation.

Sir David Galloway, whose paper on this subject also enters into this review, again writes from a broader standpoint. He refers to the fact that the term "amok" was once applied to those forms of collective excitement when whole tribes exhibited violent fanatic behaviour, but this usage has apparently been abandoned. He

would not regard post-malarial or other febrile excitement, or the frenzies which accompany epilepsy or other mental disorders as "amok," but he would keep the term to apply to those peculiar native reactions to strong emotional stress where the cause must lie in the innate constitution of the mind. He separates out two main groups: the first where the outbreak results immediately as the consequence of some acute fright or injury to the self-esteem, and in which the patient immediately attacks the object of his anger and follows by an indiscriminate murderous frenzy, and the second, where the outburst is preceded by a period of sullen pre-occupation. He regards the subjective mechanism as one of an acute emotional storm welling up out of the subconscious mind, and therefore expressing itself most directly in the most primitive form, that of uninhibited destructive violence.

Thomas Beaton.

HOGG (C. A.). **Twelve Cases of Insanity in Australian Aboriginals with a Commentary. Taken from the Records of Parramatta Mental Hospital, New South Wales.**—*Med. Jl. Australia.* 1924. June 21 & July 5. 11th Year. Vol. 1. No. 25 & Vol. 2. No. 1. (Supplement) pp. 455–456; 457–458.

BOSTOCK (J.). **Insanity in the Australian Aboriginal and its Bearing on the Evolution of Mental Disease.**—*Ibid.* July 5. 11th Year. Vol. 2. No. 1. (Supplement) pp. 459–464. [12 refs.]

The Australian Aboriginal, by virtue of his long isolation from the rest of mankind, is a unique object for anthropological investigation, and it is of great importance that any facts having a bearing on his make-up, both physical and mental, should be carefully recorded. The two papers here reviewed deal with such cases of aboriginals as have come under observation and care in the mental hospitals of New South Wales and Western Australia, and as the study of the abnormal is often most enlightening in relation to our knowledge of the normal, the subject matter is of considerable psychological interest.

Dr. Hogg deals with twelve cases only from the Parramatta Mental Hospital, New South Wales, and he classifies them as follows: "Of these twelve patients, nine were males and three females; 33·3 per cent. were congenitally deficient; 16·6 per cent. were due to drugs (alcohol); 25 per cent. were in a state of excitement and exaltation. Of the remaining 25 per cent., one was associated with epilepsy, one was suffering from phthisical insanity and one suffered from general paralysis of the insane." Five were charged with criminal offences, a very high percentage as compared with European standards, and of the total, as a result of treatment, three recovered, four remained chronically insane, while five succumbed to physical maladies and died. The author apparently had no difficulty with the mental classification, and evidently the form of the disorder showed little variation from the accepted civilized description; but there was evidence of a failure of the elaboration from the ideational point of view which is characteristic of many European psychoses. He states:—

"All these cases in comparison with white patients showed: (1) A want of organisation of the sentiments; (2) a low form of perception; (3) poor association and poverty of ideas; (4) absence of acquisitiveness and no constructive ability; (5) tested by the Terman scale their native intelligence far below that of the white; (6) little power to appreciate and adapt

themselves to the social standards of honesty and sexual morality, etc., which are those of the white community; (7) strong and ruling passions of the animal nature"; (8) the female imbeciles being married there is a doubt thrown upon the selective capacity of their spouses, and, "(9) several had corneal opacities."

Dr. Bostock deals with a greater number of cases from a wider area, and he calls for a thorough investigation of the aboriginal from the full psycho-physiological aspects, while the material is still available. He finds it necessary to resist the temptation to classify his series of cases under a modern terminology, though he admits that no novel form of disorder is met with, but he finds differences between the aboriginal and the white in the greater tendency to the development of pulmonary phthisis, the tendency to more early dementia, and the larger percentage of patients who show destructive, violent and untidy habits. Applying the dogma of Hughlings JACKSON, he suggests that the thalamic level was under poor control; just as the child reacts to unpleasant stimuli by an attack of hypomania, screaming and crying, or by depression, sulking, so does the aboriginal lack the finer reactions.

Mental deficiency, Dementia Praecox, the Manic-depressive group, and the toxic confusional conditions, including General Paralysis of the Insane, were met with, nor were there wanting the senile and arteriopathic states. These findings, of course, were to be expected, as there is no reason to suppose that civilization or intellectual development would modify the underlying causes of such conditions. Where, however, the aboriginal showed his peculiar characteristics was in the "colouring" or the actual mental content of the psychoses. This was invariably of a primitive and childish nature. Such false perceptions or delusional ideas as were manifested were of a simple type of symbolism, and in no case was there any secondary ideational elaboration into systems of delusional beliefs or of rationalization processes. The aboriginal is a motor reactor pure and simple; he has little to do with imagination or other subjective thought processes; the simple delusion or hallucination is acted upon without consideration, and there is relatively little inhibition.

Although he has no definite evidence to produce, the author expresses his belief that the milder mental disturbances, grouped as the psychoneuroses, do not occur in the aboriginal, as he rightly says these are disorders arising from the subjective conflicts which occur in consequence of the finer shades of affective reactions which we experience as a result of our upbringing under the complex civilization in which we live, and such finer conflicts do not exist for the native. His life is regulated by strict tabu on the one hand and stern necessity on the other, doubt does not affect him, nor can he question his own subjective atttitudes.

Dr. Bostock concludes that :—

There is evidence that the aboriginal shows the following characteristics in his insanities :—

(1) An early onset of dementia, with tendencies to motor responses and to visual rather than to auditory hallucinosis.

(2) The paranoid types are not represented.

(3) Dementia Praecox and Manic-depressive insanities occur.

(4) Epilepsy is probably more frequent in those in contact with European civilisation and may be a factor in the racial extinction.

(5) Confusional insanity and that associated with senile changes differ remarkably little from similar conditions in the whites.

(6) General paralysis of the insane is not infrequent and exhibits the demented form.

(7) The aboriginal has not reached an evolutional stage in which the neuroses and certain of the psycho-neuroses, hysteria and the phobias can exist.

Thomas Beaton.

SUNDSTROEM (E. S.). **A Summary of Some Studies in Tropical Acclimatisation. (Preliminary Communication.)**—*Commonwealth of Australia Dept. of Health Service Publication (Tropical Division).* No. 6. 32 pp.

Dr. Sundstroem appears to have been recently appointed to the Australian Institute of Tropical Medicine at Townsville, Queensland, and his paper appears to be addressed to his fellow-citizens not so much as a record of past work but as an earnest of his good intentions. He treats of a number of topics, and indicates what has to be done. On many questions, the data presented are scanty, the subjects of his observations being few and in many cases limited to one or two persons, often only to himself. But he is evidently industrious, and full of ideas, and one looks forward to fuller papers of which the present is only preliminary.

The important problem of basal metabolism is in the forefront, and so far as his observations go he agrees with DE ALMEIDA that this is reduced in hot climates, but this does not mean that vitality is lower, for his " reaction times " were shorter, and his energy-output at the normal level. There is no diabetic tendency observable and the blood shows an alkalotic tendency, which, however, can be combated by physical work and copious water drinking. There are many blood analyses, but the point to which the author attaches most importance is the low lipoid (especially phosphatide) content, and he suspected that reduced growth in certain schoolchildren might be correlated with this factor, but found no evidence of this in the 15 girls he examined. There is a drop in the white (especially polynuclear) leucocytes, and a number of more or less isolated facts in blood chemistry and morphology are set forth, but one awaits fuller consideration of these until more observations are to hand. No retarding effect of a hot climate (*per se*) on growth of children was found. The paper concludes with remarks on housing conditions (one house only was studied), diet (reduction of protein intake) and other means of improving tropical environment, somewhat discursively treated but with the idea of presenting points for further research.

W. D. Halliburton.

KNIPPING (H. W.). **Ueber die Analyse und therapeutische Bedeutung des tropischen Lichtklimas.**—*Arch. f. Schiffs- u. Trop.-Hyg.* 1924. Aug. Vol. 28. No. 7. pp. 269–280. With 1 fig. [19 refs.]

The therapeutic use of light is full of promise in many diseases, and although good results are reported, much better ones may be

anticipated the more precise the methods become. Though the rays with short wave lengths (ultra-violet) are credited with the healing power, their relative amount in sunlight in different places and various times of day must be more accurately measured. The present paper describes a comparatively simple method (photo-electric) for their exact estimation in the tropics.

W. D. Halliburton.

BOECKER (Eduard). **Beiträge zur Pharmakologie der Chinaalkaloide, X. Mitteilung.**—*Ztschr. f. Hyg.- u. Infektionskr.* 1924. May 28. Vol. 102. No. 3–4. pp. 477–481. [5 refs.]

The author finds that vuzin (octylhydrocupreine) and eucupin are well absorbed but more slowly than quinine if given by mouth in man, and that a small quantity passes into the urine within 24–48 hours (1·7 per cent. for vuzin, 3·2 for eucupin). The formed elements of the body have evidently greater affinity for the higher homologues. Eucupin, more of which is excreted, is *in vitro* not so firmly united to the red corpuscles as vuzin. Eucupin, like quinine and morphine, if given subcutaneously is partly excreted into the stomach, from which it is reabsorbed by the intestine. This was analytically proved for guineapigs (two experiments), but the figures are smaller than for quinine. No such finding occurred with vuzin.

W. D. Halliburton.

HARDIKAR (S. W.). **The Action of Quinine on Protein Metabolism, Respiratory Exchange, and Heat Function.** [Abstract.]—*Brit. Med. Jl.* 1924. June 28. pp. 1125–1127. [18 refs.]

This is an abstract of a forthcoming paper containing the complete details. In a critical survey of the literature of the subject and by experimental observations of laboratory animals and human subjects the author examines the reputed value of quinine in reducing body-temperature by diminishing protein metabolism (as measured by loss of nitrogen in urine) and by respiratory exchange, and comes to the conclusions that quinine does not differ in mode of action from other antipyretic drugs; that it has no action on protein metabolism in health; that it does not reduce the gaseous exchange and heat production, except in a small proportion of fever cases, and then only for less than a few hours when given in maximum pharmacopoeial doses; and, finally, that it is not possible in non-malarial fevers to control tissue-waste and to husband energy by means of quinine.

A. A.

MCCRACKEN (J. C.). **Rupture of the Spleen. Report of Twenty Cases Observed in China.**—*China. Med. Jl.* 1924. June. Vol. 38. No. 6. pp. 437—451.

The cases reported came under treatment in St. Luke's Hospital, Shanghai, between November, 1917, and August, 1922. In every instance the condition was the result of injury. No case of spontaneous rupture has been seen by the author or his colleagues. Outside Shanghai, moreover, five of the most active surgeons in different sections of

China report, in answer to a questionnaire, that no case of rupture of the spleen either accidental or spontaneous has come to their notice, in spite of the fact that in many Chinese, for one reason or another, the spleen is very large. The author accounts for this by the increased frequency of serious injuries in places where conditions inseparable from modern industry prevail. [The fact that in large cities hospitals are usually within easy reach, whereas in rural districts the reverse often holds good, may also have some bearing on this point.] 30 per cent. of the cases were caused by tram or motor accidents, and 50 per cent. were the result of assault and battery, the cosmopolitan population of Shanghai being apparently prone to readily provoked and fiercely contested personal combats. The patients were all young, the average age being twenty-four.

50 per cent. of the total became unconscious at the time of injury and remained so for periods varying from a few minutes to several hours. Pain radiating to the left shoulder, a symptom mentioned by some writers, was not observed. In all cases operated on the spleen was found to be enlarged, in two the malaria parasite was discovered, in a large percentage there was a history of antecedent malaria.

At first it was the custom to operate immediately, but it was observed that some of those who declined operation recovered without it. Latterly cases presenting symptoms of shock were allowed a period of rest for reaction to set in, and others with symptoms less pronounced, but still those of rupture of the spleen, were treated on expectant lines. With a falling blood pressure, decreasing haemoglobin, and increasing thirst with or without dullness in the flanks operation is strongly advised.

Three of the twenty cases refused operation, one being removed from Hospital before treatment of any kind could be applied, another succumbing rapidly to the effects of the injury, and the third recovering and leaving hospital on the sixteenth day. In ten instances splenectomy was performed, with a mortality of 40 per cent. In two others the abdomen was opened but removal of the spleen was not attempted, bleeding having ceased in one and dense adhesions being discovered in the second; the former died of general peritonitis in the course of a week, whilst in the latter the rupture was packed with gauze and the patient was up and about four weeks later with a clean but not completely healed wound. In three cases patients recovered without surgical intervention, and in none of them does the diagnosis appear to have been in doubt. Two others died before any operation had been performed, the symptoms in one developing some hours after out-door treatment for wounds of the head, and grave complicating internal injuries hastening the end in the second.

Full details of cases are given. The author notes that for splenectomy a left rectus incision will usually suffice, and that great care is necessary to avoid injury to the tail of the pancreas in the course of the operation.

J. J. Pratt.

VAN ANDEL (M. A.). **Willem Piso, een baanbreker der tropische geneeskunde.** [Piso, a Pioneer of Tropical Medicine.]—*Nederl. Tijdschr. v. Geneesk.* 1924. Oct. 4. Vol. 68. (2nd Half.) No. 14. pp. 1731–1746. With 3 figs. [8 refs.]

This is a short article reminding the modern student of tropical medicine of his debts to one long dead—though assuredly not forgotten.

It contains no new information concerning PISO, but deserves notice because it is written accurately and pleasantly.

PISO (1611–1678), as is well known, went to Brazil in 1636, as physician to Count JOAN MAURICE of NASSAU [cousin of the Prince of Orange], and remained with him there during the eight precarious years of his governorship of the Dutch settlement. [Those who know anything of the history of the Dutch West India Company—confessedly a buccaneering enterprise—and of the Spanish and Portuguese colonization of Brazil, will not need to be reminded of the difficulties under which PISO did his work.] Returning to Holland, PISO published in 1648 his famous *Natural History of Brazil*—a Latin folio, copiously adorned with coloured engravings, which contains the fruits of his own labours and those of his colleague MARCGRAF (1610–1644). This volume served, for many a long year, as the standard compendium of medical, zoological, and botanical information concerning South America. A second edition, enriched with the observations of BONTIUS in the East, appeared in 1658 with the title *The Natural and Medical History of Both the Indias* [*i.e.*, East and West Indies].

The work of PISO and MARCGRAF contains early descriptions of many things interesting to students of Tropical Medicine—including an account of the jigger (*Dermatophilus penetrans*), a description of the ipecacuanha plant (*Cephaelis ipecacuanha*) and its therapeutic value and use in dysentery, and a classical reference to yaws. [All these had, however, been noted by earlier travellers.] The present article is illustrated with reproductions of the title-pages of PISO's two works and his picture of the ipecacuanha plant.

[To the reviewer—who has no wish to deprive the Dutch of a pair of national heroes—it seems desirable to add (as Dr. van Andel fails to do so) that PISO, though born at Leyden, was of French origin, and MARCGRAF a German born.]

Clifford Dobell.

UNITED FRUIT COMPANY. **Medical Department. Twelfth Annual Report.** [DEEKS (W. E.), General Manager.]—180 pp. With 5 plates & 1 map. 1923.

The United Fruit Company in the years 1920–23 had an average number of 44,625 employees, and conducted its operations in Cuba, Jamaica, British Honduras, Honduras, Guatemala, Costa Rica, Panama and Colombia, in which countries its plantations cover an area of 685 square miles. It employs no less than 52 doctors. From its last annual report, which is full of interesting matter, a few extracts are here made.

Among approximately 2,000 employees from northern climates in the year under review there were only 4 deaths from conditions attributable to residence in the tropics, 2 from bacillary dysentery and 2 from blackwater fever, and the last two patients were labourers who paid little attention to hygiene.

About 2 per 1,000 employees were repatriated during the year, practically all labourers from Central American countries ; the diseases chiefly responsible were : tuberculosis, 25 per cent. ; chronic nephritis, 11 per cent. ; beriberi, 9 per cent. The following table affords a comparison [which in the absence of age data must not be pressed]

between the diseases which kill in Central and North America respectively :—

Disease.	Northern Communities.	United Fruit Company's Divisions (1923).
Typhoid fever	·7	1·0
Influenza and pneumonia	11·5	22·6
Tuberculosis—all forms	12·8	9·0
Cancer—all forms	8·8	1·4
Cerebral hemorrhage—apoplexy	6·8	·8
Diseases of the heart	12·7	5·1
Chronic nephritis	7·0	5·6
Puerperal state	1·7	1·7
Total external causes	11·8	8·2
*All other causes of death	26·2	44·6
	100·0	100·0

*Details of " All other causes of death " :—

Malaria	—	13·4
Diarrhoea and enteritis	—	3·0
Other diseases of the digestive system ...	—	3·2
Diseases of early infancy	—	2·3
Dysentery	—	7·6
Others	—	15·1

The Company's figures in this table approximate closely to those of the preceding 9 years.

As to morbidity, malaria was responsible for 38 per cent. of admissions to hospital during the year ; and next in prevalence came venereal diseases, ancylostomiasis, and dysentery in that order.

Malaria is discussed at considerable length. A questionnaire on the details of treatment sent to the members of the medical staff elicited a variety of opinions. Dr. Deeks stresses the fact, perhaps insufficiently recognized, that it is impossible by any known means to cure malaria absolutely in an individual who is suffering from some other complicating or debilitating conditions such as syphilis, hookworm disease or malnutrition.

Dr. Barber has made a recent malarial survey of the plantations of Honduras and Guatemala and finds that the Anopheles index is comparatively low. The malaria index, however, is high, probably over 30 per cent. infected, so that it is necessary to limit the number of carriers by some form of quinine treatment. In the treatment of amoebic dysentery, concurrently with emetine, bismuth subnitrate is given " a heaping teaspoonful dose every 3 or 4 hours, mechanically stirred in a tumbler of plain or aerated water," continued till the stools begin to form. Relapses are said to be rare. It is suggested that the bismuth forms a chemical combination with the nascent sulphur of the bowel contents and that free sulphur is necessary to the development of the entamoeba.

Dr. H. C. Clark, of the Tela Hospital Laboratory (Honduras) examined for malaria 3,200 of the Tela Railway Company employees

and found over 30 per cent. positive. Three other surveys were made, with the following results :—

SUMMARY OF SURVEYS.
(Incidence of malaria, by four methods.)

	Per cent.
Autopsies (acute and latent cases) (60 examined) ..	41·6
Hospital admissions (3,264)	31·5
Labour camps, schools, etc. (534 persons)	26·2
Placental films examined (44 cases)	18·1

The same author's " survey at Tela Hospital to determine syphilis " is noticed elsewhere.

A. G. B.

HOFFMANN (W. H.). **New Experiences on the Laboratory Diagnosis of Smallpox and their Practical Importance for the Sanitary Service.** —*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore,* 1923. pp. 528–537.

The methods recommended are PAUL's method and the blood count, already described in this *Bulletin* (Vol. 21, pp. 330–4).

A. G. B.

REVIEWS AND NOTICES.

NEWSTEAD (R.) [F.R.S.], with the collaboration of EVANS (Alwen M.) & POTTS (W. H.). Foreword by STEPHENS (J. W. W.). **Guide to the Study of Tsetse-Flies.**—*Liverpool School of Tropical Medicine. Memoir* (*New Series*) *No.* 1. 1924. pp. xi+332. With 3 coloured and 25 plain plates, 4 maps & 59 text figs. University Press of Liverpool, Ltd., Hodder & Stoughton, Ltd., London. [Price 20s.]

Except in its taxonomic principles and procedure, this book is modelled on familar lines. It deals comprehensively with the tsetse-flies as such, their anatomical and physiological peculiarities, their environment and their manner of adaptation to it in all stages of their existence, the different specific forms in which they are known, and the characters and the environmental particularities by which these different species are distinguished. Although, of course, it also takes due cognizance of their particular pathogenic relations, it does not wander upon the ocean of trypanosomiasis, nor into the stormy waters of tsetse-fly control, but keeps with admirable rectitude on the set course of pure entomology.

The first 42 pages are occupied by generalities—the pathogenic import of tsetse-flies, their life-cycle and peculiarities of reproduction, the egg, the larva and its modifications for intra-uterine development, the pupa, the adult characters, the structural details of the proboscis and genitalia, the main features of the alimentary tract. Everything here is very clear and full, though more notice might have been taken of the antennal sensory organ, an object so worthy of comparative study, and—as another purely entomological point—the comparative study of the breathing-organs of the larva might, perhaps, have included some reference to those of the larva of some of the Oestrids.

The classification of the tsetse-flies, which follows, is based upon the characters of the genitalia—an anatomical basis first expounded by the senior author. This basis, though not the most convenient for the medical man—since it necessitates more familiarity with insect anatomy than he has need of, and more technical manipulation of specimens than he, perhaps, has time for—is in itself unimpeachable. By the construction of their genitalia the species of Glossina are separated into three groups—typified severally by *fusca*, *palpalis*, *morsitans*—each of which, moreover, has its several superficial, corroborative distinctions more amenable to the inexpert eye. How much further we may safely go in discriminating specific types exclusively by their genitalia is a question to be asked. We can hardly assume that types of genitalia are of geometrical constancy in every little detail, or that trivial inconstancies in the component parts of a given structural plan bear exactly the same interpretation as large constructional differences of plan such as those that strike the eye in the three species named above.

The individual species are treated on a uniform plan which in every case includes the synonymy and documentary record (the latter probably not intended to be complete), the diagnosis and a succinct description, a detailed and illustrated description of the genitalia, and the geographical range; to this is added what is known of the life-cycle and bionomy. This last biological information is, for most of the species, necessarily lacunar, but in the case of those notoriously dangerous it is as full as possible and includes all the known and studied details of the life-history, reproductive life, and life-cycle, and the environmental influences—organic, meteorological, and seasonal—by which they are determined and affected. Valuable and interesting, and very often suggestive, this biological information indeed is, but in the main it is too copiously and diffusely stated to be easily apprehended and firmly locked in the memory.

The plates include excellent coloured figures and a profusion of anatomical illustrations by the accomplished senior author, a gallery of artistic pictures of the haunts and breeding-grounds of the flies, and some very clear and instructive distributional maps.

The volume is well got up and daintily apparelled.

A. Alcock.

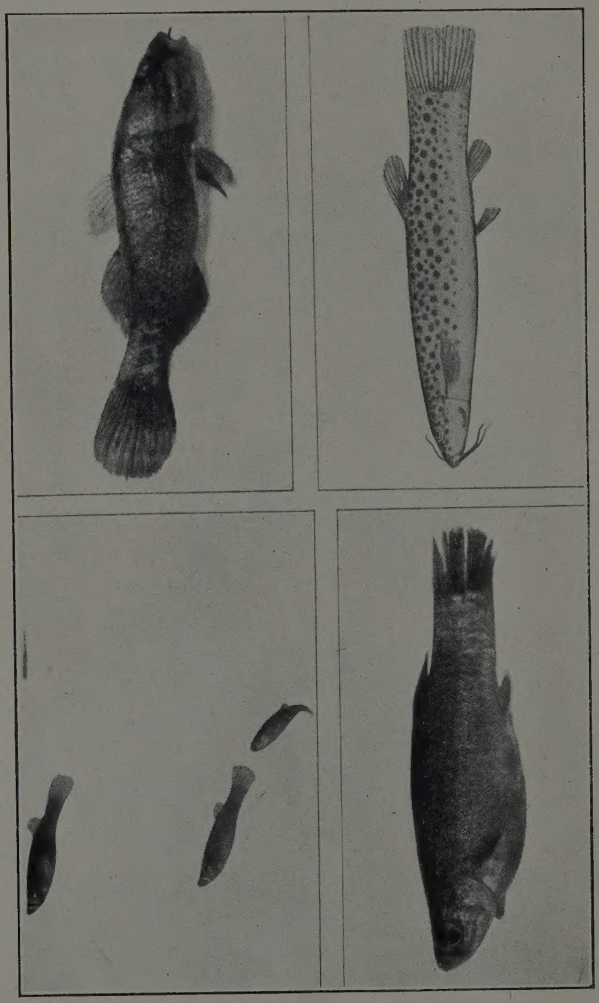
ROCKEFELLER FOUNDATION. **Annual Report for 1923.** [VINCENT (George E.), President.]—pp. xiii–389. With 79 figs. & 1 portrait. The Rockefeller Foundation: 61, Broadway, New York.

A bare catalogue of the undertakings initiated, or supported and aided by the munificence of the Rockefeller Foundation, in the year 1923, has appeared in this *Bulletin* (Vol. 21, p. 764). That was quoted from the President's Review; it now remains to take the wings of the morning and fly to the uttermost parts of the sea in a rapid survey of those world-wide benefactions as they are mirrored in the official reports of the International Health Board, the China Medical Board, and the Division of Medical Education.

To take Medical Education first. All three branches, preliminary, scientific, undergraduate, and post-graduate in all its ramifications, have been impartially developed or sustained in many countries according to their respective individual needs. Apart from bountiful assistance to institutions in the United States and in China (see below), large grants were made to the medical schools of three universities in Canada and one in Brazil, and final payments to complete the fine Institute of Anatomy presented to University College in London. "Either directly or through other agencies [the Foundation] provided fellowships for 636 men and women who were preparing for teaching or administration" in various branches of medicine, public health, and ancillary sciences—travelling and resident fellowships, impartially cosmopolitan and international in allotment and tenure. We may follow the course of a graduate holding one type of fellowship in public health. All arrangements are made for his passage from his own country to New York, where he is met and provided for; and a programme of studies is arranged, which includes an academic course in the Johns Hopkins School of Hygiene and practical experience of various branches of service in city and county. Thus promising individuals are being trained for specific service in their own countries; and there are other types of fellowships. The Division of Medical Education also afforded emergency assistance abroad in the form of literature, laboratory supplies, and local fellowships, besides maintaining a wide-spread general survey and advisory service. The disbursements for the year, on account of medical education (U.S.A. and China included) amounted to close upon five million dollars (p. 65).

The multifarious activities of the International Health Board have ranged from America round to Australia. They include the developing of rural sanitation and organization of Public Health in New Brunswick, the southern U.S.A., Brazil, Czechoslovakia, and the Philippines; assistance or co-operation, in varying degrees, in hookworm control in North, South and Central America and the West Indies, Mauritius, Ceylon, Siam, the Philippines and Australia; assistance in malaria prevention in the southern U.S.A., Nicaragua, Rio de Janeiro, Palestine, and the Philippines; aid and co-operation in the organization of Public Health Nursing Services in Brazil, France, and the Philippines; assistance in the establishment of laboratories in several countries east and west, and to Public Health education in São Paulo, Prague, and Warsaw; and generous co-operation with the League of Nations in the development of an international health organization and international interchanges of public health personnel. Furthermore, systematic operations against yellow-fever were continued in Mexico, Colombia, and the east coast of Brazil, and it is believed that now "the liberation of the Americas from the

menace of yellow fever is a goal at last within sight." In the extermination of the yellow fever mosquito, which breeds so largely in domestic receptacles, little fishes were of the greatest service. The expenditure of the International Health Board for the year amounted to 3,174,268 dollars (p. 64).



Four of the most useful fish for the control of mosquito breeding. Top: left, *Gambusia affinis*, the best known of the top-minnows; right, *Dormitator latifrons*, or *chalaso*; Bottom: left, *Fundulus heterodlitus*, or barred killifish; right, *Pygidium piurae* E., popularly known in South America as "lite" (pronounced lefa).
[Reproduced from the *Annual Report of the Rockefeller Foundation for* 1923.]

The engagements of the China Medical Board were chiefly in continuation of established projects, particularly medical education and—equally important in the East—the preliminary scientific education. At the Peking Union Medical College and Hospital, which is the principal

recipient of the Board's assistance, the number of undergraduate students during the year was 53—with 56 at the adjunct Pre-medical School, and 16 at the associated Nursing School; graduate courses in various subjects were also maintained; and special funds were provided for a field study of kala azar, 5,000 treatments of which disease were carried out at the hospital during the first half of the year. At the hospital 213 beds were maintained, and 3,403 in-patients and 77,301 out-patients were treated. The inveterate antipathy of the Chinese to post-mortem investigation has still to be surmounted. Large assistance was given to the now incorporated and united medical school of Tsinan and women's medical college of Peking; the number of students was 96. The usual annual subsidy was paid to the Hunan Yale College of Medicine (41 students). Towards preliminary scientific education further grants to the extent of more than 300,000 dollars were made, or promised, for the construction of buildings and laboratories at numerous established schools and universities. A necessary atmosphere for medical education has still, however, to be created in China, and to this end a grant has been made towards a campaign of suggestion among the academic youth, and the apparatus for lively lectures on public health has been distributed. The adaptation of the vernacular to accurate translation of medical literature is another necessity towards which temporary contributions are continued.

Finally, provision was made for the temporary maintenance of an architectural bureau to give advisory assistance to hospitals, medical colleges and other such institutions in China contemplating additions or improvements to their buildings.

Of the details of the Treasurer's Report one can only say, in the language of Rosencranz, that they strike the reader with amazement and admiration.

A. Alcock.

Ceylon. Its History, People, Commerce, Industries and Resources. With a Foreword by the Hon. Mr. Cecil CLEMENTI, C.M.G. (Colonial Secretary, Ceylon).—pp. xxxvi+207+119+125. With 1 map & numerous illustrations. Compiled and published by Plâte, Ltd., Colombo. [Price Rs. 5s.]

Except for one astonishing omission this little gazetteer of Ceylon is a useful and artistic piece of work. In a minimum of words it gives an excellent impression of the natural features of the island, sketches its history, laws, political institutions, and educational advances, and describes its public works and buildings, its agriculture and fisheries, its industries of every kind, and its objects of particular natural and historic interest. Withal it is so well illustrated that in some chapters we can almost scent the soft-blowing spicy breezes—the "ever gently breathing gales of zephyr, Oceanus sends up to gladden man." But in a short chapter on "Population" we learn that even in this rich and beautiful island the curst fiend Care "climbs the bark and trims the sail." In a population (1921) of over 4,500,000, during the last decade the annual average death-rate was 30 per mille (30·6 in 1923), and the annual average infantile mortality 193 per 1,000 births, and in 1923 the standardized urban death-rate ranged from 19·8 to 72·5 per mille. When now we look for some account of the prevalent causes of these high death-rates and of the medical and sanitary institutions for preventing them we can find nothing. In a Who's Who appendix we do indeed see the names and styles—and in some instances the counterfeit presentments—of the local medical practitioners; but *nothing* is there said of their public work, or of the institutions where that work is carried on. Surely we may ask—more in sorrow than in anger—Is not this an astonishing omission for the beginning of the second century after Pasteur?

A. Alcock.

MENSE (Carl). **Handbuch der Tropenkrankheiten. 3te Auflage. Band 2.**—pp. xiii+1019. With 18 plates & 306 figs. 1924. Leipzig: Verlag von Johann Ambrosius Barth. [Price G. M. 66 unbound, 70 bound.]

Lepra (von Prof. Dr. Georg STICKER). Maltafieber oder Mittelmeerfieber (von Prof. Dr. med. Martin MAYER). Cholera asiatica (von Prof. Dr. Paul KRAUSE). Psittakosis (von Prof. Dr. Filippo RHO). Die Pest (von Prof. Dr. P. C. FLU). Die Tsutsugamushi-Krankheit (von Prof. Dr. M. MIYAJIMA). Die Spru (Tropische Aphthen) (von Prof. Dr. Hermann DOLD). Beriberi (von Prof. Dr. Bernhard NOCHT). Die tropischen Hautkrankheiten (von Prof. Dr. Albert PLEHN & Dr. Karl MENSE jun.). Die tropischen Intoxikationskrankheiten I. (von Prof. Dr. Filippo RHO). Die tropischen Intoxikationskrankheiten II. (von Prof. Dr. Edwin Stanton FAUST).

As a result of the war, the present edition of this well-known text-book suffers from the inability of the writers of the various articles to acquaint themselves sufficiently with the work done by those of other, often enemy, nations in the same field. Much use is indeed made of the experience of German army doctors, but, although lengthy bibliographies are supplied, the text contains scanty or no references to the numerous recent publications by the medical officers of other nationalities. Several of the articles appear in almost the same form as in previous editions.

Unstinted praise must be given to the chapter on leprosy by Dr. Georg STICKER. This contains an especially interesting section on the history of the disease, and an excellent account of its pathology and symptoms. The author shows a judicious caution about the results of treatment.

In Professor Paul KRAUSE's article on cholera the bacteriology and pathology are presented in masterly fashion, but the discussion of the treatment of the disease seems scarcely adequate.

Professor P. C. FLU is responsible for the account of plague; the sections on epidemiology, and on the relations between rats, fleas and man, are worthy of the author's reputation. The numerous references to work done in the Java epidemic are of much value.

Tsutsugamushi disease is in the competent hands of Professor M. MIYAJIMA, and Professor Hermann DOLD gives an attractive account of the aetiology and theories as to the nature of sprue. Numerous forms of skin diseases seen in the Tropics are described, but nearly all the articles are too short, and not sufficiently critical, to be of much practical value.

More than one hundred pages are assigned to the poisonous plants and animals of warm countries; the section on snake venoms can scarcely be considered to represent adequately modern knowledge of the subject.

The illustrations are mostly reproductions of photographs; while some are satisfactory enough, there are many diseases which do not lend themselves to this method of graphic representation.

"Handbuch" seems a more than usually inappropriate word in the case of a work in six volumes, of which the one under review, unbound, weighs six pounds.

H. J. Walton.